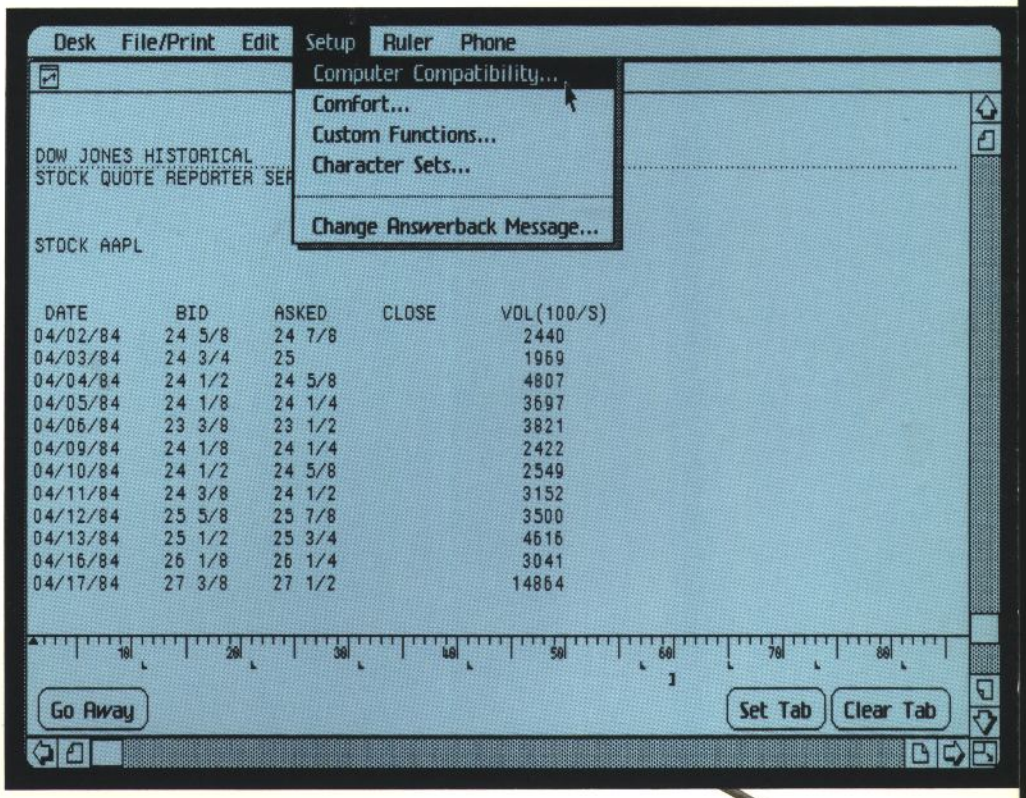
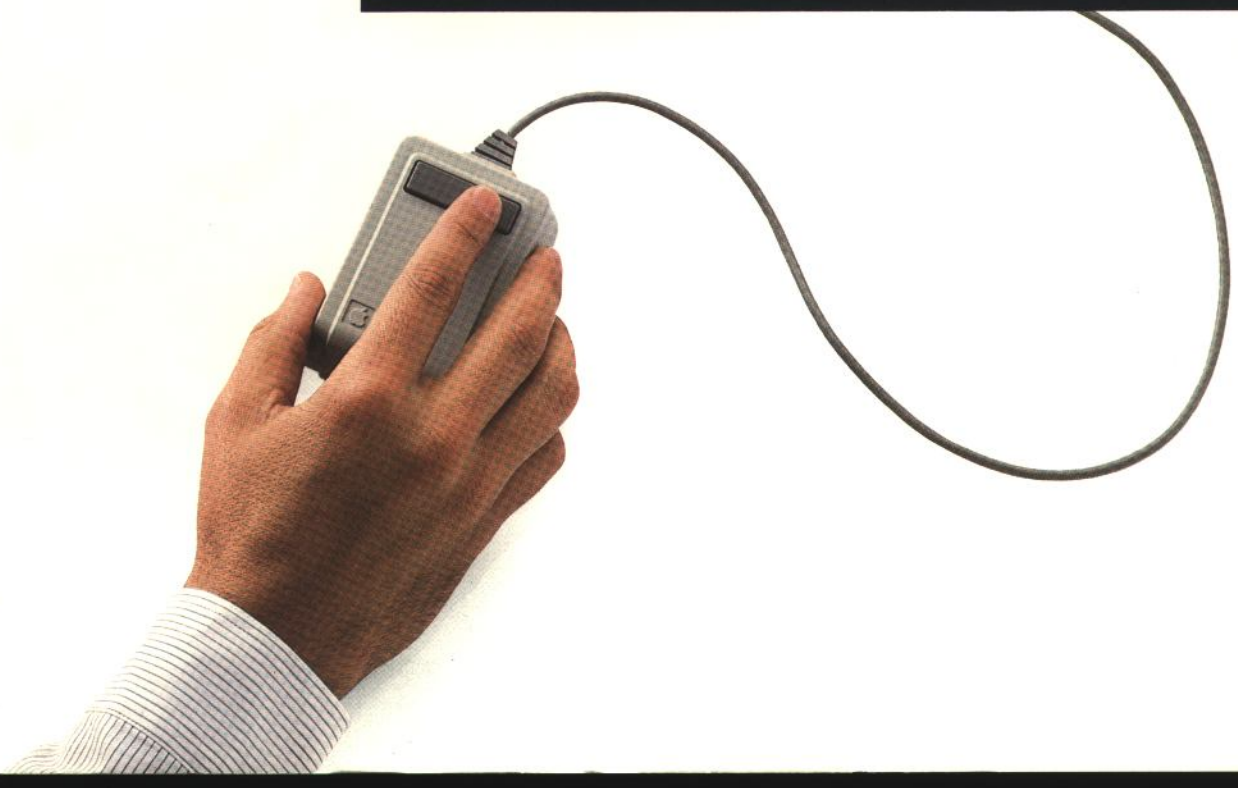
LisaTerminal





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Before You Begin

Before you begin, be sure you've gone through LisaGuide. Instructions for using LisaGuide appear in Chapter 1, LisaGuide, in the *Lisa Office System* manual. Refer also to Chapter 3, Lisa Essentials, in the *Lisa Office System* manual. Procedures you should understand before beginning LisaTerminal include the following:

- How to move the pointer around the screen using the mouse.
- How to open menus and choose menu items.
- How to select text or objects on the screen.
- How to open and save documents.
- How to change the size of a window and how to move a window around on the desktop.
- How to scroll the contents of the window to see different parts of the document.

Introducing LisaTerminal

LisaTerminal lets you communicate interactively with other computers. Using LisaTerminal, your Lisa® acts like any number of standard terminals, taking on the characteristics of a simple input/output device. When a computer like the Lisa imitates a standard input/output terminal, the process is called *emulation*. LisaTerminal is a terminal emulator that lets your Lisa act like a TTY, DEC™VT52™, or DEC VT100™ terminal.

Unlike your Lisa, a standard terminal is not a computer, but only works when it is connected to a host computer. A host computer communicates with the Lisa using the LisaTerminal document to emulate the standard terminal. You specify, in the LisaTerminal document, which terminal you want the Lisa to emulate.

The part of each LisaTerminal document that emulates a TTY, DEC VT52, or DEC VT100 terminal is the *terminal screen area*. Figure 1 illustrates the terminal screen area in relation to the LisaTerminal document and the host computer. The host computer in the illustration connects to the Lisa by way of telephone lines. This type of connection is known as a remote connection. Therefore, the host computer is also called the remote computer; that is, communication between the computer and your Lisa takes place via telephone lines.

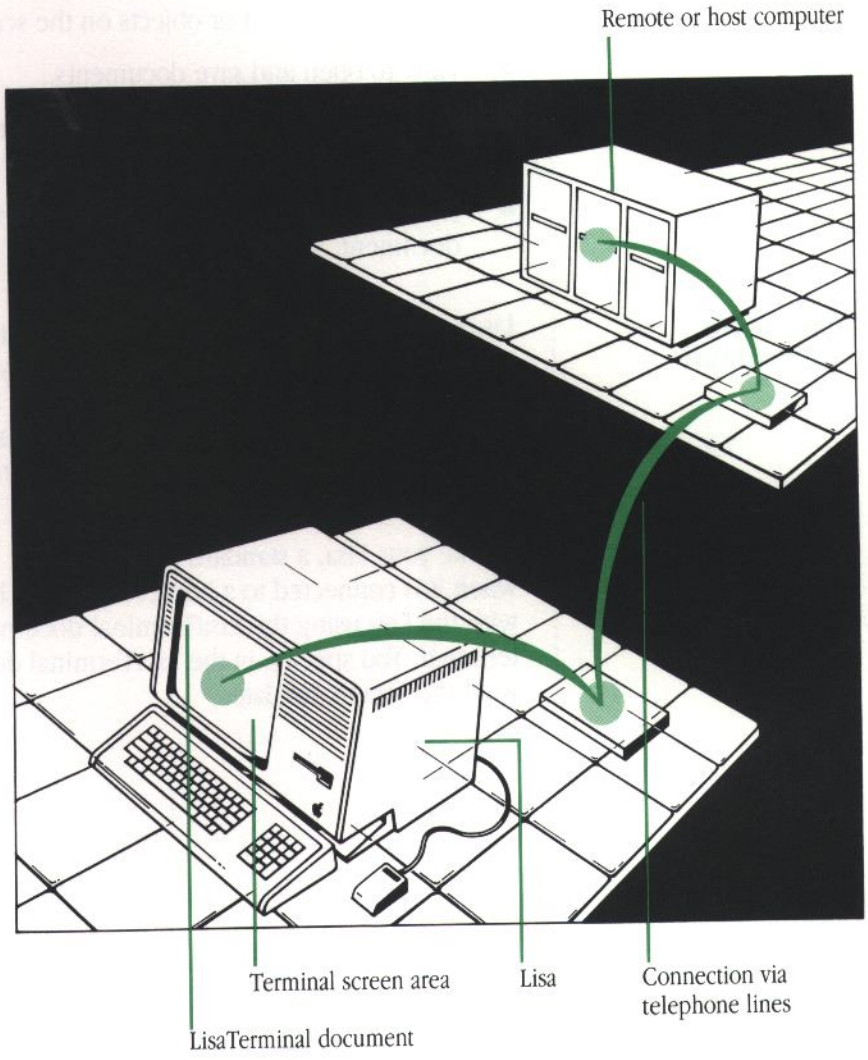


Figure 1. Terminal Screen Area and Its Relationships

You can use LisaTerminal to transfer information between your Lisa and another computer, including another Lisa or another Apple computer. You can, for example, send information to an electronic mail program running on a remote computer. You can also access most public communications networks and data bases if you have an account on the appropriate system. You can send and receive bulletin board notices or get information on stock prices. Using the usual Lisa Office System procedures, you can copy material from other computers and paste it into Lisa documents for processing and printing.

The LisaTerminal master micro diskette is included in the package with this manual. The diskette consists of the tool and a pad of stationery. Insert your micro diskette and follow the procedures in Chapter 6, Setting Up Your System, in the *Lisa Office System* manual.

Setting Up the Lisa to Communicate with Remote Computers

Before communicating with another computer through LisaTerminal, you set up the Lisa so that it will function with the host computer.

- Make sure you have the proper hardware.
- Connect a modem or direct tie line to the Lisa. A tie line is a dedicated communications line available from the phone company for your exclusive use.
- Set up the Connect Device Software portion of Preferences to tell the Lisa what kind of modem you have and where it is connected.

Hardware Requirements

You need the following hardware to use LisaTerminal:

- A Lisa.
- A modem or direct tie line. The Apple Modem 1200 or the Apple Modem 300 is recommended.
- A cable with a male DB-25 connector for the Lisa and the proper connector for your modem. Apple modems require a DB-9 connector.

Connecting the Modem

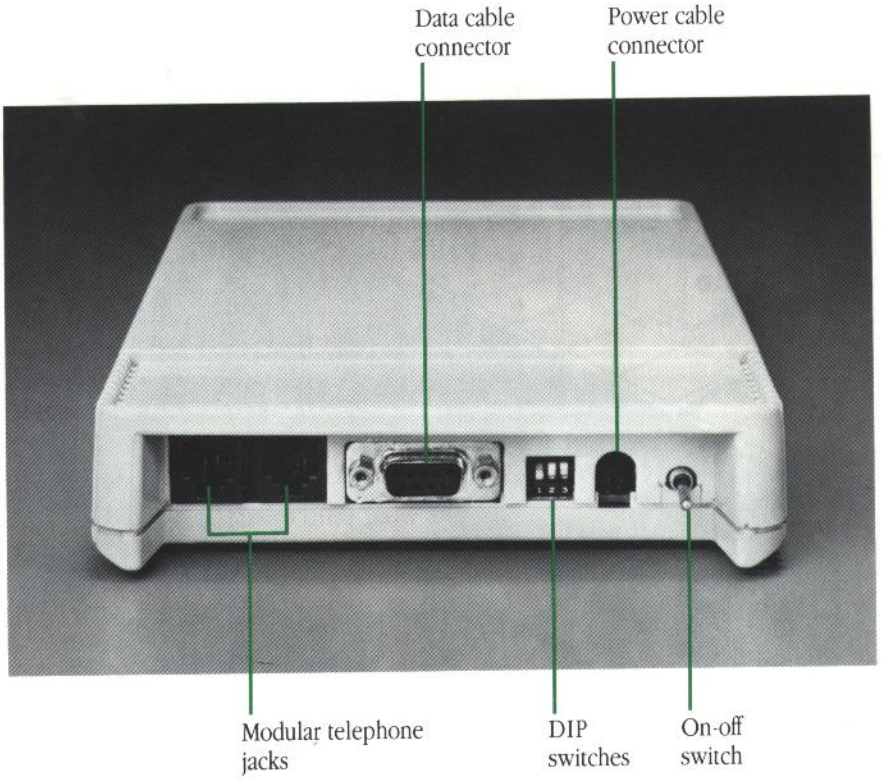
The following information on connecting your modem is reprinted from the *Apple Modem 300/1200 User's Manual: Guide to the Lisa.*

To Connect the Modem:

Check to make sure the on-off controls for both the Apple modem and the Lisa are turned off, and follow these steps.

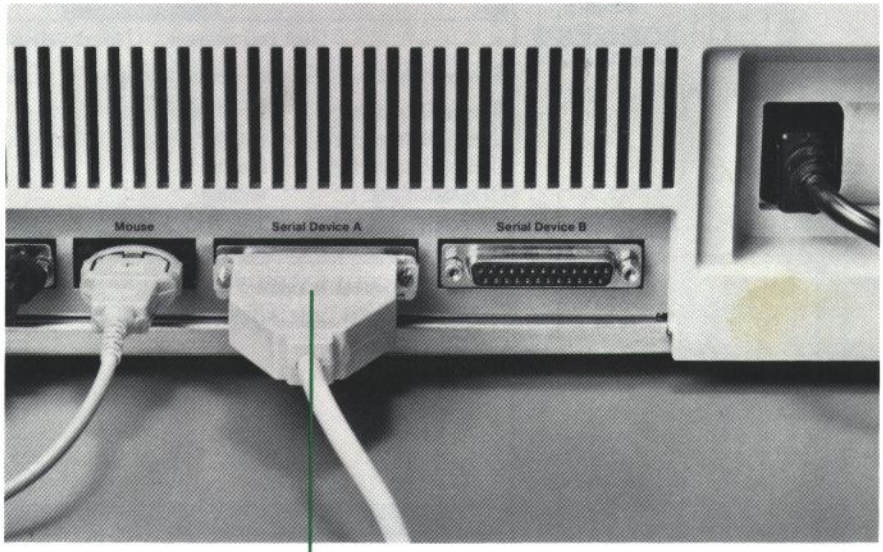
1▶ Find the Apple data cable in your modem accessory kit. Do not try to use another cable; the cable in your kit is shielded to meet FCC standards.

2▶ Plug the 9-pin connector into the data cable connector at the back of your modem.



3▶ Tighten the two small screws on each side so the connector can't work loose.

4 ▸ Plug the other end of the data cable into either of the connectors labeled Serial A or Serial B on the back panel of the Lisa. The Serial A connector excludes 3600 and 19200 baud. The Serial B connector allows you to use all the baud rates provided by LisaTerminal.



Data cable connected to Serial A

Both serial connectors accept 25-prong, D-shaped connectors. You cannot attach the connector incorrectly; it plugs in only one way.

For more detailed information on Apple modems, refer to *Apple Modem 300/1200 User's Manual, Part I: Reference,* and *Apple Modem 300/1200 User's Manual: Guide to the Lisa.*

Setting Preferences

To communicate with a remote computer, the Lisa must first know to which connector (port) the modem is attached. This is accomplished through the use of Lisa Preferences.

To Set Preferences:

1 ▸ Open the Preferences window by clicking twice on the Preferences icon.

▸▸▸

2▸ Click the Connect Device box. You see a list of the connectors on the back of the Lisa and what, if anything, is attached to them. See Figure 2.

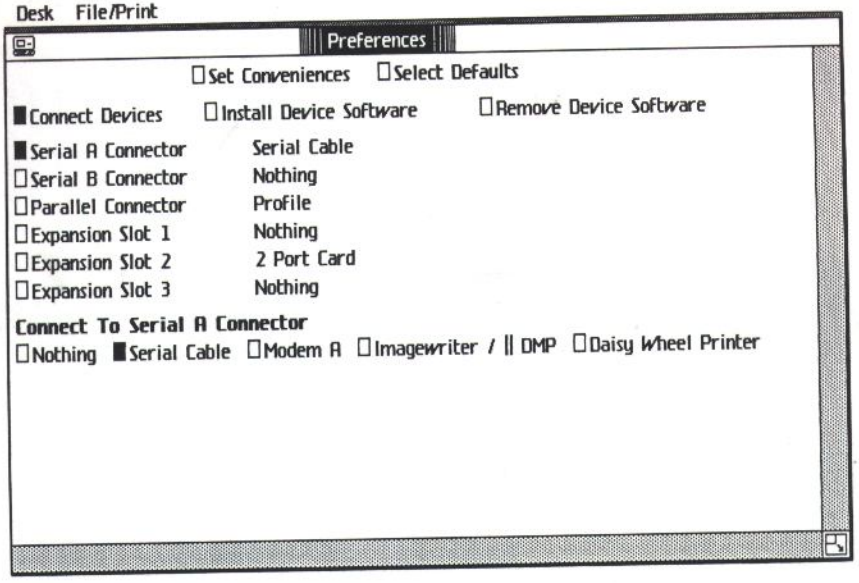


Figure 2. Preferences Window

3▸ Click the box of the port, Serial A or Serial B, to which you attached the modem. Figure 2 shows Serial A selected.

4▸ Click the Serial Cable box, as shown in Figure 2.

Note: Modem A represents software to support European connections. The software necessary to support European applications is available on the Lisa Serial A port only. For a complete explanation of Lisa Preferences, refer to Chapter 6, Setting Up Your System, in the *Lisa Office System* manual.

5▸ Open the **File/Print** menu and choose **Set Aside Preferences** to close the Preferences window.

Creating a LisaTerminal Document

A LisaTerminal document displays a communications session with a remote computer; in it you see the communication that takes place between your Lisa and the host computer.

To Create a New LisaTerminal Document:

1 ▶ Click twice on the LisaTerminal Paper stationery pad icon.

2 ▶ Name the new document by typing, for example, *host-one.*

3 ▶ Open the new document by clicking twice on the document icon.

You have created a LisaTerminal document from LisaTerminal stationery.

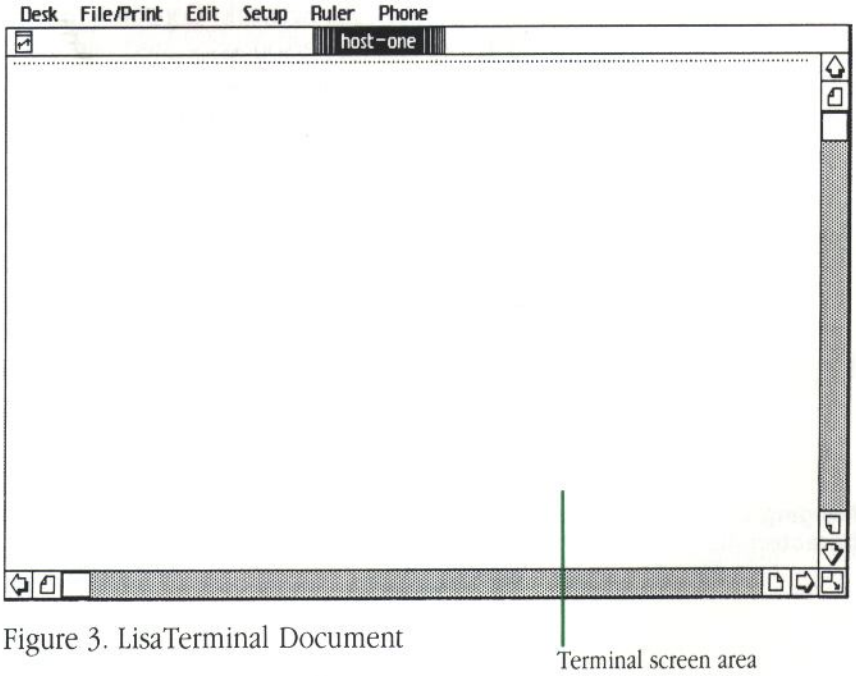


Figure 3. LisaTerminal Document

LisaTerminal Menus

LisaTerminal documents have six menus: **Desk**, **File/Print**, **Edit**, **Setup**, **Ruler**, and **Phone**.

The first three menus, **Desk**, **File/Print**, and **Edit**, contain the basic options found in most Lisa applications for managing documents within an application and for revising text. For more information on these menus, refer to Chapter 5, Quick Reference, in the *Lisa Office System* manual. As do all applications, LisaTerminal uses some of these standard options in unique ways. For example, since the host computer is the primary source of what is in the terminal screen area, the concept of *cutting* in a LisaTerminal document does not exist.

The last three menus, **Setup**, **Ruler**, and **Phone**, contain the menu options specific to LisaTerminal. Do not be alarmed if the **Phone** menu is not displayed in your newly created document. The **Phone** menu appears when you tailor your LisaTerminal document for use with an Apple Modem 1200 or 300, as explained in more detail later in this chapter.

LisaTerminal Setup Characteristics

All LisaTerminal setup characteristics are explained in this chapter. Setup characteristics fall into four categories:

Computer Compatibility Use these characteristics to set up compatibility with the host computer and, if applicable, a communications network. Consult a manual for the host computer or a data processing person associated with the host with which you wish to communicate. Find out what compatibility characteristics are necessary for successful communication.

Comfort Use these characteristics to set up LisaTerminal for your ease of use and complete terminal emulation.

Custom Functions Use these characteristics if a host application requires them. Consult a data processing specialist associated with the remote computer, or a manual for the application, to see if you should use the custom functions.

Character Sets Use these characteristics to select the character sets that are required for successful communication with specific host computers.

Changing a Setup Characteristic

Newly created LisaTerminal documents include preestablished set up characteristics known as *default settings*. To change these settings, open the **Setup** menu and choose **Computer Compatibility**, **Comfort**, **Custom Functions**, or **Character Sets**. Each option will display a dialog box with default settings. These dialog boxes, with the default settings, are explained later in this chapter.

To select a particular characteristic, simply click on the box next to the desired option. For example, to change the background of the video display from white to black:

1 ▸ Open the **Setup** menu and choose **Comfort**.

2 ▸ Move the pointer to Background and click on the box to the left of Black.

3 ▶ Notice that the box darkens to show that the black background characteristic is now selected. The video display background is now black.

4 ▶ Click OK. The characteristics you check are set for the document that is currently open.

Or, if you wish to continue working without changing any existing characteristics:

1 ▶ Click Cancel. LisaTerminal continues to use the default characteristics that existed before the dialog box appeared.

Computer Compatibility

The computer compatibility characteristics allow you to tailor the LisaTerminal document for compatible communication with different host computers.

To Set Computer Compatibility Characteristics:

1 ▶ Open the **Setup** menu and choose **Computer Compatibility**.

The Computer Compatibility dialog box, with the default settings, is shown in Figure 4.

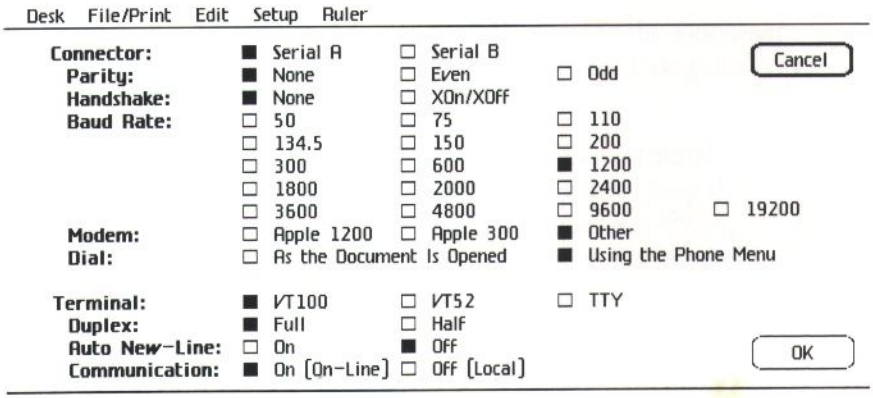

Desk File/Print Edit Setup Ruler
Connector: ■ Serial A □ Serial B
Parity: ■ None □ Even □ Odd
Handshake: ■ None □ XOn/XOff
Baud Rate: □ 50 □ 75 □ 110
□ 134.5 □ 150 □ 200
□ 300 □ 600 ■ 1200
□ 1800 □ 2000 □ 2400
□ 3600 □ 4800 □ 9600 □ 19200
Modem: □ Apple 1200 □ Apple 300 ■ Other
Dial: □ As the Document Is Opened ■ Using the Phone Menu
Terminal: ■ VT100 □ VT52 □ TTY
Duplex: ■ Full □ Half
Auto New-Line: □ On ■ Off
Communication: ■ On [On-Line] □ Off [Local]
Cancel
OK

Figure 4. Computer Compatibility Dialog Box

Connector

Use the connector characteristic to tell the Lisa to which connector, Serial A or Serial B, your modem or direct tie line is attached.

In a document created from the LisaTerminal Paper stationery pad, the connector characteristic is automatically set to match the information set in the Preferences window. That is, if the Preferences window shows Serial A attached to Serial Cable, the connector default is Serial A. Similarly, Serial B is the default if the Preferences window shows Serial B attached to Serial Cable. If the Preferences window shows both Serial A and Serial B connected to Serial Cable, Serial A is the default in all new LisaTerminal documents.

Serial A does not support 3600 or 19200 baud. If you wish to communicate at 3600 or 19200 baud, connect your modem to Serial B.

Note: If the Preferences window shows the Imagewriter attached to Serial A, LisaTerminal will default to Serial A. In other words, with your modem attached to Serial A, LisaTerminal uses Serial A to communicate even though the Imagewriter is selected in Preferences. You do not need to change the Preferences setting to communicate.

Parity

Parity refers to the process of checking that data were not damaged in transmission. The way you set parity for LisaTerminal is determined by the host computer requirements; check a manual for the host, or consult a data processing specialist associated with the host computer. Parity can be set at Even, Odd, or None (turned off). The default setting is None.

Handshake

Handshaking is the ability to regulate transmission of data between the host computer and LisaTerminal. Transmission of data is halted when the LisaTerminal buffers are too full to handle more incoming information. When LisaTerminal is ready for more information, it sends a signal to the host to resume data transmission. Similarly, data transmission is halted when the host receives more information than it can handle, and starts when the host is ready to receive more information. The handshake choice depends upon the requirements of the host computer. The default is None.

Baud Rate

The *baud rate* is the speed at which data passes to and from the remote computer. The baud rate you choose depends on the host computer or communications network. LisaTerminal supports the following baud rates: 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 9600, and 19200 baud. You must use Serial B to use 3600 or 19200 baud. The default is 1200 baud.

Modem

The *modem characteristic* specifies the type of modem you are using: Apple 1200, Apple 300, or Other if you are using another kind of modem or a direct tie line. You may use the LisaTerminal **Phone** menu only if you have an Apple modem and if you choose Apple 1200 or Apple 300. The default is Other.

Dial

You must click Apple 1200 or Apple 300 for the modem characteristic to select a dial characteristic.

Using an Apple 1200 or Apple 300 modem, click As the Document Is Opened, which gives you automatic dialing, or click Using the Phone Menu to put manual dialing into effect.

Click As the Document Is Opened if you want LisaTerminal to dial the remote computer when you open a document. Click Using the Phone Menu if you intend to use the **Phone** menu to tell LisaTerminal when to dial the remote computer. The default is Using the Phone Menu.

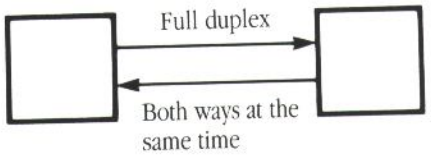
Terminal

LisaTerminal assumes the characteristics of the DEC VT100, DEC VT52, or TTY terminals. The default is VT100.

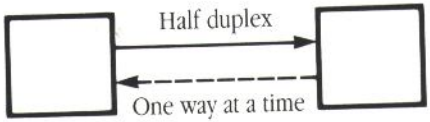
Duplex

Information travels between your Lisa and the remote computer in one of two ways: Full duplex or half duplex transmission of information.

Full duplex transmission allows information to flow in both directions at one time. Both the Lisa and the remote computer send and receive information simultaneously.



Half duplex transmission allows information to flow only in one direction at a time. Information flows in both directions between the Lisa and the remote computer, but not at the same time.



Most communication over telephone lines is full duplex. Click Full Duplex to choose this option. If, as you enter information, you don't see what you enter but do receive messages from the host, click Half Duplex. This condition indicates the use of half duplex transmission.

If you click Half Duplex and see double characters, this indicates the use of full duplex transmission. The default is Full Duplex.

Auto New-Line

The auto new-line feature lets the Return key on the Lisa keyboard function like the Return key on a conventional electric typewriter. When the auto new-line feature is on, pressing the Return key generates a carriage return and line feed. This means that when you press Return, the cursor scrolls down to the left margin of the next line. See Figure 5.

Document with auto new-line places the cursor at the beginning of the next line when you press Return

Figure 5. Auto New-Line On

If double line feeds occur consistently, click Auto New-Line Off; the host computer is performing this function for you. The default is Off.

Communication

The communication characteristic tells LisaTerminal whether or not you intend to use the LisaTerminal document to communicate with a remote computer. You must click On (On-Line) before LisaTerminal can communicate with a host computer. When you click Off (Local), LisaTerminal cannot communicate with a remote computer.

If Preferences has Serial A or Serial B, or both, connected to Serial Cable, the default is On (On-Line); otherwise the default is Off (Local).

Comfort

Comfort characteristics allow you to set up LisaTerminal to establish a working environment suited to your needs.

To Set Comfort Characteristics:

1 ▶ Open the **Setup** menu and choose **Comfort**.

The Comfort Characteristics dialog box, with the default settings, is shown in Figure 6.

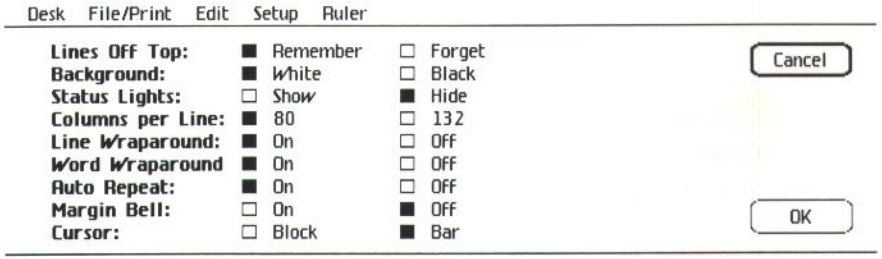

Desk File/Print Edit Setup Ruler
Lines Off Top: ■ Remember □ Forget
Background: ■ White □ Black
Status Lights: □ Show ■ Hide
Columns per Line: ■ 80 □ 132
Line Wraparound: ■ On □ Off
Word Wraparound ■ On □ Off
Auto Repeat: ■ On □ Off
Margin Bell: □ On ■ Off
Cursor: □ Block ■ Bar
Cancel
OK

Figure 6. Comfort Characteristics Dialog Box

Lines Off Top

Twenty-four lines in the LisaTerminal document are used to display the information sent to and received from the various computers with which you communicate. Depending on what you click for Remember Lines Off Top in the LisaTerminal Comfort Characteristics dialog box, either you can record, on a disk, all the interactions with the remote computer, or you can use the document as a simple input/output terminal, with information disappearing as it scrolls off the screen.

When you click Remember, all the information in the terminal screen area during a particular work session is saved. When you click Forget, all information that scrolls off the terminal screen area is lost. The default is Remember.

Background

You use Background to change the color of the background of the terminal screen area. You can choose a white background with black characters or a black background with white characters. The default is White.

Status Lights

The status lights on a DEC VT100 terminal are located above the keys on the keyboard. The status lights are used by host computers in different ways. For information on whether a particular host computer uses these lights, and what they are used for, consult a manual for the host computer.

LisaTerminal displays status lights in the upper part of the LisaTerminal document. Figure 7 shows the position of the status lights within a LisaTerminal document. The status lights are, by default, hidden.

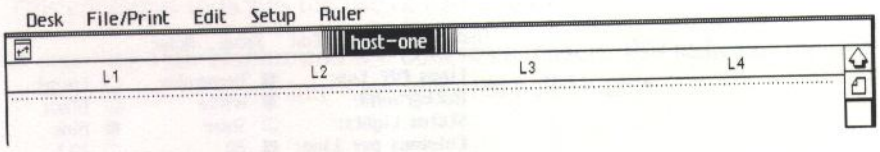


Figure 7. LisaTerminal Status Lights

Columns per Line

LisaTerminal supports 80 or 132 columns per line. When you click 80 columns per line, the screen display is 80 columns wide by 24 lines high. When you click 132 columns per line, the screen displays 132 columns and 24 lines. The default is 80.

Line Wraparound

Depending on the specified columns per line (80 or 132), the cursor moves to the first position on the next line when at the 81st or 133rd character. The next character is displayed at the left margin on the next line to prevent information from disappearing off the right side of the terminal screen.

When you click Off for the line wraparound setting, all characters after 80 or 132 write over the last character in the line.

How you set the line wraparound setting depends on the host computer. If the host computer provides this function, you need not choose a line wraparound setting. If a particular host does not provide a wraparound function, click On. The default is On.

Word Wraparound

Depending on the specified columns per line (80 or 132), any word that exceeds the right margin automatically moves down to start a new line at the left margin.

When you click Off for the Word Wraparound setting, all characters after 80 or 132 move to the next line if the line wraparound feature is On. If both line wraparound and word wraparound are set to Off, all characters after 80 or 132 write over the last character in the line. The word wraparound default is On.

Auto Repeat

When you hold down a key, characters repeat automatically after you check the Auto Repeat characteristic. The rate at which characters repeat is controlled by Preferences. Auto Repeat does not affect the following keys: Tab, Return, and ESC keys. The default is On.

Margin Bell

When you click Margin Bell, a warning bell rings whenever the cursor is ten characters from the right margin. The default is Off.

Cursor

The cursor shows the point on the screen where the next character will be displayed. The cursor is represented as a blinking bar or a blinking block. The cursor is visible only in the 24-line terminal screen area. The default cursor is the blinking bar.

Custom Functions

Custom functions provide four bits the host computer can read. Whether and how the host computer uses these bits is up to the host software application. If the host computer uses these bits as an integer, bit 3 is the most significant bit, and bit 0 is the least significant bit.

To Set Custom Functions:

1 ▶ Open the **Setup** menu and choose **Custom Functions**.

2 ▶ Move the pointer to the values you desire in the dialog box and click the box next to the value you choose.

The Custom Functions dialog box is shown in Figure 8.

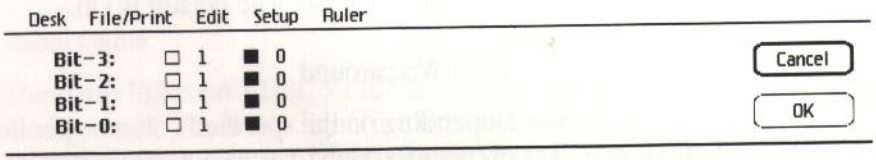


Figure 8. Customs Functions Dialog Box

Character Sets

Character sets represent the language or vocabulary sets computers use to communicate with each other. You select the character set that is compatible with the host computer.

To Choose Character Sets:

1 ▶ Open the **Setup** menu and choose **Character Sets**.

The Character Sets dialog box, with the default settings, is shown in Figure 9.

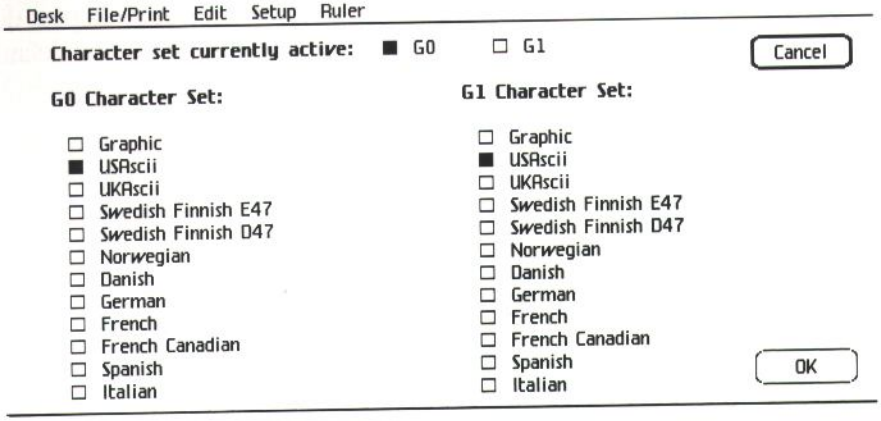


Figure 9. Character Sets Dialog Box

G0 and G1

G0 and G1 mean that LisaTerminal supports two different character sets simultaneously. In other words, LisaTerminal is capable of switching from one character set to another while communicating on-line with a remote computer. If you have any doubt about the character sets supported by the host computer, consult the data processing specialist associated with the host computer.

ASCII

ASCII stands for American Standard Code for Information Interchange, developed by the American National Standards Institute to establish a common computer language for communication between different computers in the United States. The default is ASCII.

Because different languages use different characters, there are many different character sets for Europe. Refer to Appendix E for detailed information on international ASCII mapping.

Changing the Answerback Message

Some host computers ask for terminal identification. The answerback message allows LisaTerminal to identify itself to the host. All answerback messages must be delimited by the same character. In other words, you must start and end the message with the same character. The delimiter can be any character; nonprinting characters appear as bullets in the dialog box

To Enter an Answerback Message:

1 ▸ Open the **Setup** menu and choose **Change Answerback Message**.

2 ▸ Enter the answerback message in the dialog box. In this example, the message is *Hello*.

XHELLOX

LisaTerminal sends the answerback message to the host computer, and the dialog box disappears from the screen as the last delimiter is entered.

The Change Answerback Message dialog box does not allow backspaces. If you make a mistake, type your delimiter and press Return; then repeat steps 1 and 2.

Establishing the Connection

Using LisaTerminal and an Apple modem, you can connect to a remote computer in one of two ways:

- Call directly.
- Connect to a public communications network, using that network to reach the remote computer.

If you call the remote computer, you log directly into the computer. The computer compatibility characteristics you set for successful communications with that computer remain the same throughout the communications session.

When you use a communications network, you dial a local phone number for the network which in turn connects you to the remote computer. You may have to change some of the computer compatibility settings once you access the remote computer. Refer to Appendix D, Using LisaTerminal with Public Networks and Data Bases, for some examples of network and remote computer requirements.

Dialing the Remote Computer

Regardless of how you connect to the remote computer, LisaTerminal directs the modem to dial the phone number if you are using an Apple Modem 1200 or an Apple Modem 300. Use the LisaTerminal **Phone** menu when you want to access the remote computer, or direct the modem to dial the remote computer as the LisaTerminal document is opened.

If You Don't Have an Apple Modem

If you don't have an Apple Modem 1200 or Apple Modem 300, you can't use the LisaTerminal **Phone** menu. You must call the remote computer yourself.

Read the owner's manual for your modem to find out how to connect the modem to the telephone, and what commands, if any, your modem requires.

Before you can dial the remote computer, you must do the following:

1► Open a LisaTerminal document.

2► Click Other for the modem characteristic in the Computer Compatibility dialog box.

Some modems connect directly to the telephone. Generally, when a modem is connected to the telephone, you dial the remote computer's number and hang up the telephone handset when you hear the connection established. Other modems may require you to enter the telephone number on the Lisa keyboard.

Using the Phone Menu

To Use the Phone Menu:

1 ▸ Click either Apple 1200 or Apple 300 for the modem characteristic in the Computer Compatibility dialog box.

2 ▸ Click Using the Phone Menu for the dial characteristic in the Computer Compatibility dialog box.

The **Phone** menu offers three options:

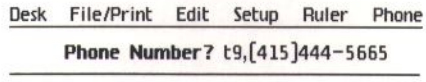
- Dial allows you to enter or change the phone number of the communications network or the remote computer. **Dial** also allows you to direct the modem to dial the phone number.
- Enter Phone Number allows you to enter the phone number of the communications network or remote computer.
- Hang Up allows you to terminate communications with the remote computer.

Entering a Phone Number

To Enter a Phone Number:

1 ▸ Open the **Phone** menu and choose **Dial** or **Enter Phone Number**.

2 ▸ Enter the phone number. For example, enter t9,(415)444-5665 in the dialog box.



Phone numbers you enter into the **Dial** or **Enter Phone Number** dialog boxes must be in the following format:

1. Precede the phone number with *t* if you have a push-button phone — for example, t(415)444-5665.
2. Precede the phone number with *p* if you have a pulse (rotary dial) phone — for example, p(415)444-5665.
3. Use a comma when you want the Apple modem to wait for another dial tone before dialing a number. If you have to dial a number to get an outside line, insert a comma between the number for the outside line and the remote computer's phone number.

For example, t9,(415)444-5665 informs the modem:

- You have a push-button phone.
- *9* must be dialed for an outside line.
- The modem is to dial *(415)444-5665* after a second dial tone occurs.

The area code is necessary only if the number you are entering is outside your own area. The phone number must not exceed 40 characters.

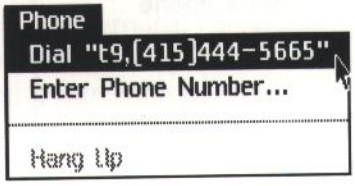
If you do not precede all phone numbers you enter in the Dial dialog box with either a *t* or a *p,* the Apple modem uses pulse dialing. You can use all the normal formatting when you enter the phone number; for example, t9,(415)444-5665. LisaTerminal ignores characters such as parentheses and dashes.

4. After you enter the phone number, press Return. You never have to enter the phone number again.

LisaTerminal displays the phone number after **Dial** in the **Phone** menu.

To Dial the Number:

1 ▸ Open the **Phone** menu and choose **Dial**.



LisaTerminal dials the phone number, and the link between LisaTerminal and the host computer is established. You hear the dialing, dial tone, and connection noises from the Apple modem as connection is established.

Changing a Phone Number

To Change a Telephone Number:

1 ▸ Open the **Phone** menu and choose **Enter Phone Number**.

2 ▸ Enter the phone number in the dialog box and press Return.

LisaTerminal displays the new phone number after **Dial** in the **Phone** menu. To dial the new number, open the **Phone** menu and choose **Dial**.

Dialing the Remote Computer As the LisaTerminal Document Is Opened

LisaTerminal directs the modem to automatically dial the remote computer as you open a document. To do so, the LisaTerminal document must meet the following requirements:

- Apple Modem 1200 or Apple Modem 300 must be selected for the modem characteristic in the Computer Compatibility dialog box.
- As the Document is Opened must be selected for the dial characteristic in the Computer Compatibility dialog box.
- The phone number for the remote computer must be recorded on the **Dial** menu of the document.

Hanging Up

To Hang Up:

1 ▸ Open the **Phone** menu and choose **Hang Up**. This ends communication with the host computer.

Creating Stationery Pads

Let's say you create a LisaTerminal document and set the requirements for successful communication with a particular host computer. If you plan to access that host computer frequently, you can create a stationery pad from the customized LisaTerminal document. Then, whenever you want to communicate with that particular host computer, you tear off a piece of stationery to create a new document with the same customized settings.

To Create a Custom Stationery Pad:

1 ▸ Select the LisaTerminal document icon from which you want to make stationery.

2 ▸ With the document icon still selected, open the **File/Print** menu and choose **Make Stationery Pad**.

The new stationery pad automatically takes on the name of the document. Change the name if you like, or leave the name the way it is. You may use the new stationery pad to create new LisaTerminal documents. All LisaTerminal documents created from this customized pad will have the characteristics you set for the document from which the pad was made. You can make as many different stationery pads as you need, and discard old ones as your needs change.

Chapter 2

Using LisaTerminal

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Introduction

This chapter provides information about

- The LisaTerminal screen area.
- The LisaTerminal **Ruler** menu.
- Revising data within the LisaTerminal document.
- Using LisaTerminal with other Lisa applications.
- Filing and retrieving LisaTerminal documents.

LisaTerminal Screen Area

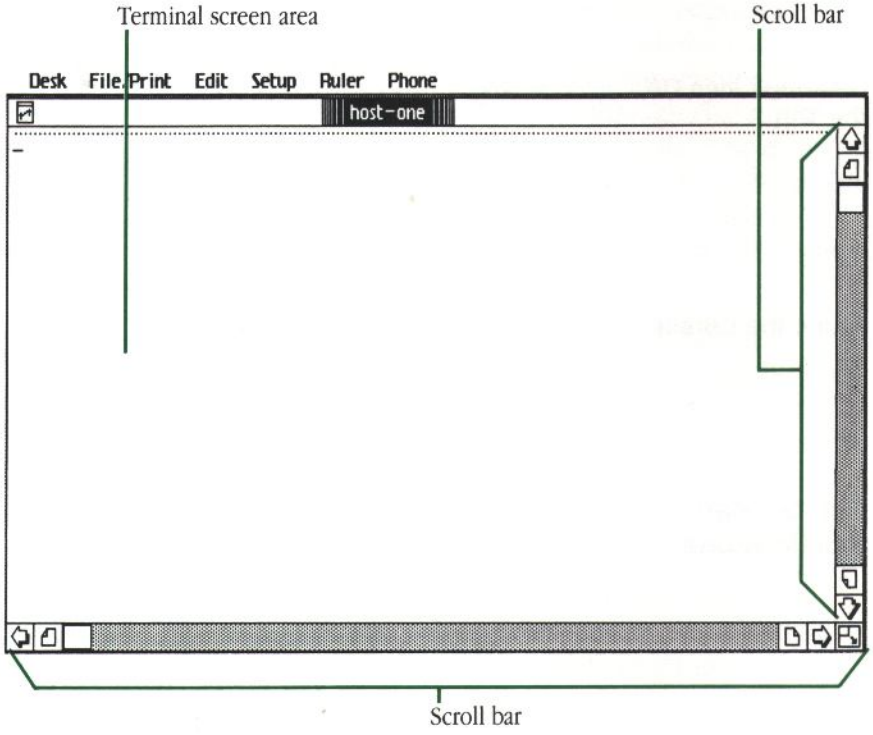


Figure 10. LisaTerminal Document

The LisaTerminal screen displays the characteristics of the terminal being emulated. Communication between LisaTerminal and the remote computer appears on a 24-line screen area in the LisaTerminal document.

The terminal screen area is distinguished from the rest of the LisaTerminal document by a dashed line across the top. Lines of data automatically scroll above this dashed line as the terminal screen area fills up. You can either record all the interactions of a communications session, or you can let the lines disappear as they scroll above the dashed line, depending on what you choose for the Lines Off Top item in the Comfort dialog box (choose the **Comfort** item in the **Setup** menu to get the Comfort dialog box). If you choose Remember, the lines are remembered, the complete communications session is recorded, and you can use the scroll bars to scroll up and down within the LisaTerminal document to review all the previous transactions.

Clearing Lines Off the Top

To clear the lines that scroll off the top of the terminal screen area:

1▶ Open the **Edit** menu and choose **Clear Lines Off Top**.

When you choose **Clear Lines Off Top**, the lines that scrolled off the top of the terminal screen area are erased. You cannot retrieve or redisplay them.

About the Cursor

The terminal screen area contains a cursor. The cursor indicates the position at which data you enter on the Lisa keyboard or receive from the host appears. The host computer can, by itself or using commands you enter from the Lisa keyboard, change the position of the cursor.

Full-Screen Applications

Some host computers have software applications that display a full screen of information at one time. Typically, these applications display a complete screen and position the cursor automatically for data entry. Generally, you move from data entry to data entry by using the Tab, Return and arrow keys — the application running on the host determines which keys are used.

If you access a full-screen application, lines of data will not scroll above the terminal screen area. Rather, the host erases the screen and redisplays it when more information is required. Since LisaTerminal only remembers scrolled information, only the last screen of data is saved during a work session with a full-screen application. You can copy important intermediate screens of data to LisaWrite. Refer to Using LisaTerminal with Other Tools, later in this chapter, for more information.

If you access full-screen applications, use the size control box to expand the LisaTerminal document window to the boundaries of the Lisa screen. This ensures that the entire terminal screen area is available for viewing.

To Adjust a LisaTerminal Document Window:

1 ▸ Move the pointer into the size control box, and then press and drag it and the flickering boundary to the right, to the left, up, or down.

2 ▸ Release the mouse button when the window is the size you want.

Note that when you enlarge the LisaTerminal document window, part of the document — in the bottom of the window — is gray. The gray part of the document is unavailable for use; it is outside the 24-line terminal screen area.

Using LisaTerminal to Move Information

Using LisaTerminal, you can move information between applications running on host computers and applications running on the Lisa. LisaTerminal provides access to the host by emulating a terminal. However, ordinary terminals display information through characters displayed at fixed column and row positions and do not have the ability to format information for Lisa applications. For example, ordinary terminals translate tab positions into space characters; that is, they insert the appropriate number of spaces in order to display the character following a tab character at the desired column position.

LisaTerminal has features that allow you to format fixed-character information so that it can be pasted into Lisa applications using tables and other formatted displays. Conversely, should host applications need information formatted into fixed rows and columns, LisaTerminal can be set up to provide it.

You use the **Ruler** menu to set up LisaTerminal for formatting information. The Tab ruler is used to format all information *put into* LisaTerminal. For the moment, look upon LisaTerminal as an object that receives information from many sources — you, a host computer, or other Lisa applications. (This is somewhat different from thinking of LisaTerminal *as sending* what you type and *receiving* what the host transmits.) Data can be *put into* LisaTerminal in three ways. Data can be

- Transmitted from a host computer application.
- Pasted in from a Lisa tool.
- Typed in from the keyboard for transmission to the host computer.

The Column ruler is used to format information *taken from* the LisaTerminal screen. Typically, this is information received by LisaTerminal from host computers that is to be copied from the screen and pasted into other Lisa applications. The Column ruler allows you to specify column positions so that the information is properly placed into the tables and lists displayed by Lisa tools.

Using the LisaTerminal Ruler Menu

The **Ruler** menu has six entries:

Show Tab Ruler Opens the Tab ruler, which allows you to set and clear tab stops for text put into LisaTerminal.

Show Column Ruler Opens the Column ruler, which allows you to specify column positions for text on the LisaTerminal screen so that the text can be pasted into tables and lists.

Hide Rulers Removes the Tab and Column rulers from the screen.

Set Tab Every 8 Allows you to automatically set tabs every eight characters.

Clear All Tabs Removes all selected tab stops from the Tab ruler.

Clear All Columns Removes all selected column stops from the Column ruler.

Setting the Format for Incoming Information

Some host applications use tab stops to set formats for information, and LisaTerminal recognizes these tab stops. (*Format* refers to the arrangement of text or data on a page, or on the screen.) If the host application does not send tab settings, you must set tab stops in LisaTerminal before receiving a transmission from the host. You use the LisaTerminal Tab ruler to set tabs. Consult the documentation for the host application to find out whether or not you need to do this.

LisaTerminal arranges all tabbed information *put into it* according to the settings on the Tab ruler. When a tab character is put into LisaTerminal, the cursor moves to the next tab position to the right. This applies to any tab character, whether it is

- Transmitted from a host computer application.
- Pasted in from a Lisa application for transmission to the host computer.
- Typed in from the keyboard for transmission to the host computer.

The tabs format must be set before the information is put into LisaTerminal. Therefore, if you want to change tab settings, do it before the host starts to transmit data. Setting tabs in LisaTerminal doesn't affect what's already on the screen.

To Display the Tab Ruler:

1 ▶ Open the **Ruler** menu and choose **Show Tab Ruler**.

The Tab ruler, with default settings (tabs set every eight characters), is shown in Figure 11.

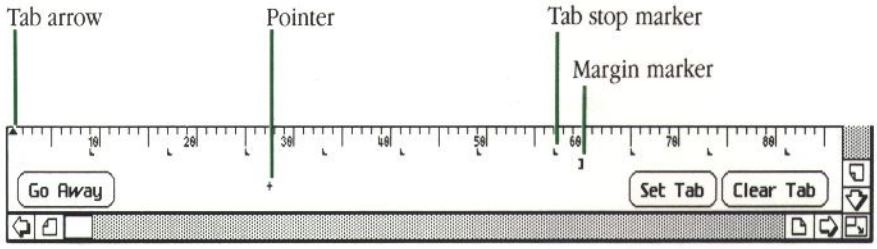


Figure 11. LisaTerminal Tab Ruler

The following brief descriptions explain the functions of the items you see on the Tab ruler:

Tab arrow Lets you indicate where on the ruler you want to set a tab stop.

Tab stop marker Shows where text will be positioned.

Margin marker Lets you adjust the right margin by moving this marker.

Set Tab button Allows you to set a tab stop.

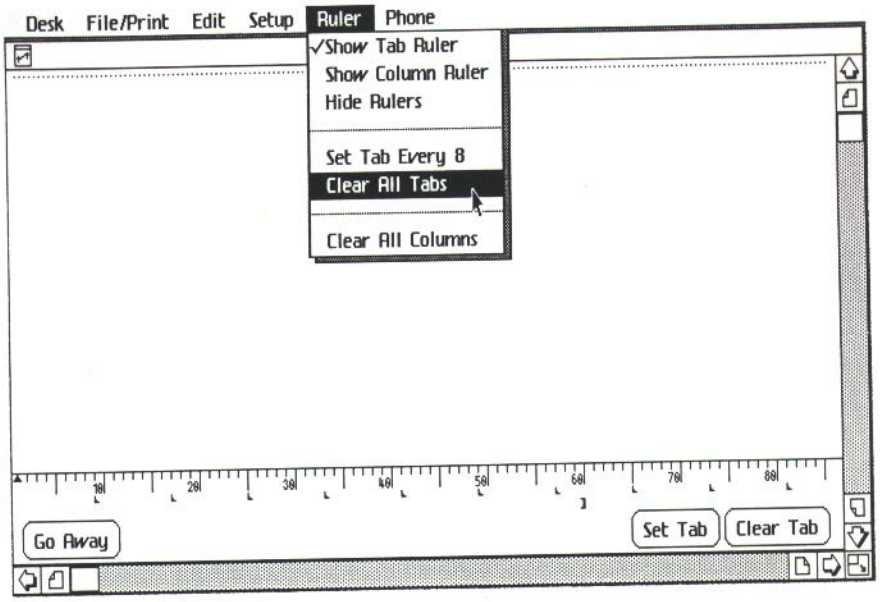
Clear Tab button Clears the selected tab stop from the ruler.

Go Away button Removes the Tab ruler from the screen.

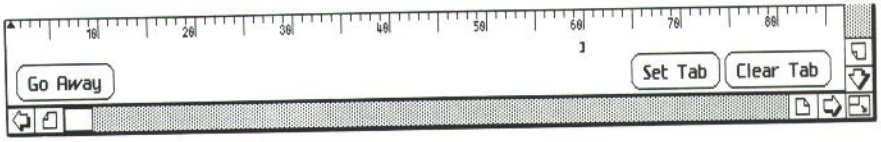
Pointer A plus sign (+) represents the cursor on the LisaTerminal Tab ruler.

To Clear All Tabs:

1 ▶ Choose **Clear All Tabs** from the **Ruler** menu.



Your ruler is now clear of all selected tab stops.

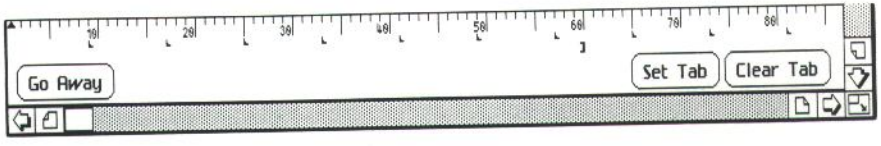


Setting Individual Tabs

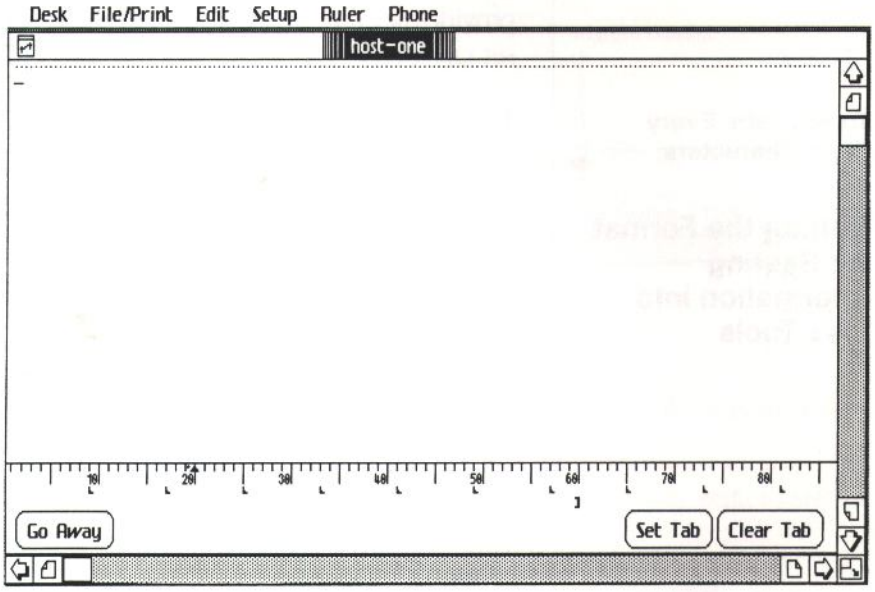
You set and clear tab stops at any position on the Tab ruler. The tab stops you set apply to every line in the document; you cannot set tabs differently for individual lines.

To Set Tab Stops:

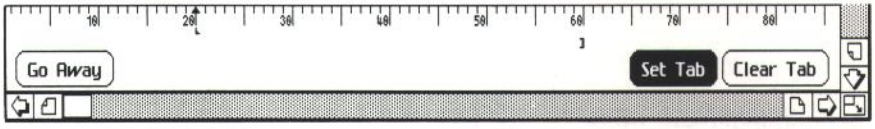
1 ▶ Move the pointer to the position on the ruler where you want to establish a tab stop.



2 ▶ Click on the ruler. Notice that an arrow indicates the desired position of the tab stop.



3 ▶ Click Set Tab to establish the tab stop. Notice that a tab stop marker on the ruler shows where text will be positioned.



Moving and Clearing Tabs

You can set, move, and clear tab stops at any point in a work session.

To Move a Tab Stop:

1 ▶ Position the pointer over the tab stop marker.

2 ▶ Click and drag the tab stop marker to the position where you want the tab set.

To Clear a Single Tab Stop:

1 ▶ Position the pointer over the tab stop marker.

2 ▶ Click on the tab stop marker.

3 ▶ Click Clear Tab to remove the selected tab stop.

Setting Tabs Every 8

When a host computer sends data, it assumes the terminal has tabs set every eight characters. By default, tabs are set to every eight characters in a newly created LisaTerminal document. In addition, LisaTerminal provides **Set Tabs Every 8** on the **Ruler** menu to allow you to automatically set tabs every eight characters in your LisaTerminal document.

To Set Tabs Every Eight Characters:

1▶ Open the **Ruler** menu and choose **Set Tabs Every 8**.

Setting the Format for Pasting Information into Lisa Tools

Once information is on the LisaTerminal screen, you may want to copy it to paste into other Lisa tools.

You can copy a selection from LisaTerminal in two ways, using the two menu items in the **Edit** Menu, **Copy Text** and **Copy Columns**.

You can use either **Copy Text** or **Copy Columns** to paste text into LisaWrite, but you must use **Copy Columns** when pasting into LisaCalc, LisaGraph, or LisaList if you want the columns in the LisaTerminal document to line up with columns in the tool documents. If you use **Copy Text** with these tools, the information you paste goes only into the first column.

When you copy a selection from LisaTerminal using **Copy Columns**, invisible tab characters are placed within the selected text at each position specified on the Column ruler.

When you copy a selection from LisaTerminal using **Copy Text**, no tab characters are copied, even if they were put into the original text. Instead, the text is copied as it is displayed on the screen, with space characters providing the column positioning. (Remember that ordinary terminals display tabs with spaces, and LisaTerminal has emulated this behavior.)

To Display the Column Ruler:

1 ▸ Open the **Ruler** menu and choose **Show Column Ruler.**

The Column ruler, with default settings, is shown in Figure 12.

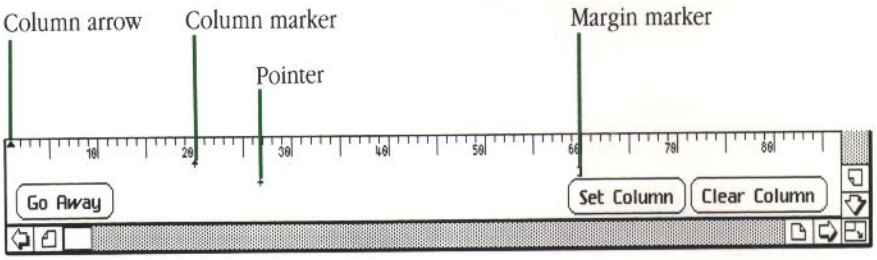


Figure 12. LisaTerminal Column Ruler

The following brief descriptions explain the functions of the items you see on the Column ruler:

Column arrow Lets you indicate where on the ruler you want to start a column.

Column marker Shows where a column will be positioned.

Margin marker Lets you adjust the right margin by moving this marker.

Set Column button Allows you to designate the position of a column.

Clear Column button Clears the selected column from the ruler.

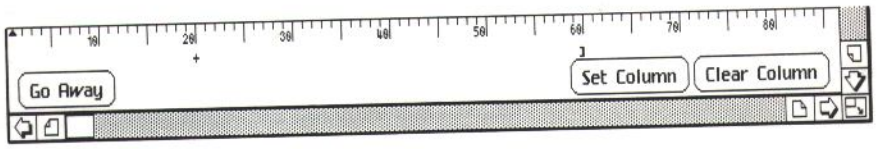
Go Away button Removes the Column ruler from the screen.

Pointer A plus sign (+) represents the cursor on the LisaTerminal Column ruler.

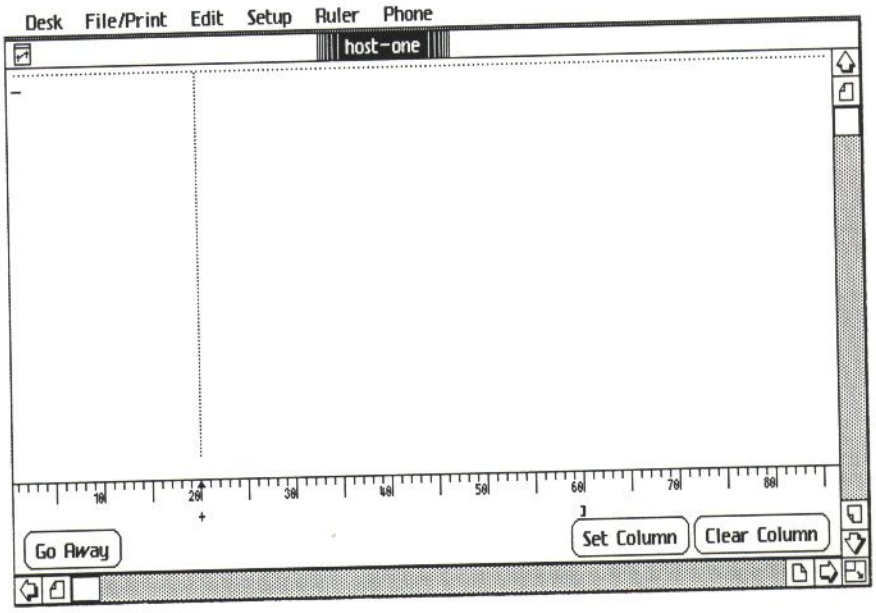
To Set Columns:

You can set and clear columns at any position on the Column ruler. Column settings determine the format of the entire document; you cannot set columns differently in different sections of one LisaTerminal document.

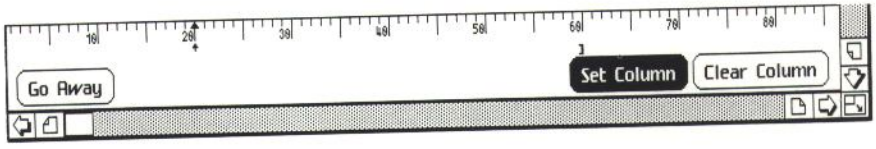
1 ▶ Move the pointer to the position on the ruler where you want to establish a column.



2 ▶ Click on the ruler. Notice that an arrow indicates the desired position of the column.



3 ▶ Click Set Column to establish the column. Notice that a column marker on the ruler shows where the column will be positioned.



To Move a Column Setting:

You can set, move, and clear columns at any point in a work session.

1 ▶ Position the pointer over the column marker.

2 ▶ Click and drag the column marker to the position where you want the column.

To Clear a Single Column Stop:

1 ▶ Position the pointer over the column marker.

2 ▶ Click on the column marker.

3 ▶ Click Clear Column to remove the selected column.

To Clear All Columns:

1 ▶ Open the **Ruler** menu and choose **Clear All Columns**.

Your ruler is now clear of all selected columns.

To Hide the Tab or Column Ruler:

1 ▶ Open the **Ruler** menu and choose **Hide Rulers**.

Or

When you finish using a ruler to set tabs or columns the way you wish:

1 ▶ Click Go Away. The ruler disappears from the screen.

Using LisaTerminal with Other Lisa Tools

After you create a LisaTerminal document, you can copy all or parts of the data into documents created with other Lisa tools. The reverse is also true; you can copy information from documents created with other applications into LisaTerminal.

You can use LisaTerminal with

- LisaWrite
- LisaGraph
- LisaList
- LisaCalc

Apple Key

LisaTerminal uses the Apple key differently from the other Lisa tools. LisaTerminal uses the Apple-key combinations to generate control and escape sequences for the remote computer. Refer to Appendix E, Programmer's Reference, for an explanation of the LisaTerminal keyboard.

If you are not familiar with the concepts involved in editing a Lisa document, you should use LisaGuide for an introduction and refer to the *Lisa Office System* manual for additional information. Editing LisaTerminal documents is somewhat different from editing other Lisa documents.

Cut Since host computers are the primary source of what is in the terminal screen area, you cannot remove any information from the screen. Therefore, you cannot cut text from a LisaTerminal document.

Copy Text Copying information from LisaTerminal is much like copying information with any of the other Lisa tools, except that you cannot use the Apple key as a shortcut for the **Edit** menu items. There are two forms of copy — **Copy Text** and **Copy Columns**.

> **Copy Text** copies a selection from the screen using the formatting provided by ordinary terminals — that is, the selection contains no tab characters. Remember that ordinary terminals substitute the appropriate number of space characters for any tab character sent to them.
>
> **Copy Columns** copies a selection from the screen using the formatting provided by the Column ruler — that is, the selection contains tab characters at each column position specified on the Column ruler. These tabs will line up with columns in LisaCalc, LisaGraph, and LisaList when you paste information into these tools. The tab characters are in addition to the spaces displayed on the screen — no space characters are deleted.

Note: The settings specified on the Tab ruler are of no consquence to selections copied *from* a LisaTerminal document.

Paste When you paste information into a LisaTerminal document from another application during a communications session, the information is transmitted to the host computer just as if it had been typed in from the keyboard. The information appears after the last entry in the LisaTerminal document, where the cursor is, unless the host uses a software application that handles data transferral differently.

If tab characters are included in the selection pasted into the LisaTerminal document, the tab characters align themselves according to the specifications indicated on the Tab ruler. Tabs are inserted manually in LisaWrite documents by pressing the Tab key. In LisaGraph, LisaList, and LisaCalc, tabs are inserted automatically at the beginning of each column whenever you copy a group of cells into LisaTerminal.

Note: You must set the tab markers within a LisaTerminal document before pasting information from LisaGraph, LisaList, or LisaCalc, or tabbed information from LisaWrite, into LisaTerminal. Note also that the settings specified on the Column ruler are of no consquence to selections pasted *into* a LisaTerminal document.

Select All of Document Selects the entire LisaTerminal document, including lines scrolled off the top.

From LisaTerminal to Other Lisa Tools

From LisaTerminal to LisaCalc or LisaGraph

You can copy a selection from a LisaTerminal document and paste it into a LisaGraph or LisaCalc table. Before copying a selection from a LisaTerminal document, you must set the column positions on the Column ruler. This divides the selection into rows and columns that can be fitted into the rows and columns of a table. Each line of LisaTerminal defines a row, and each column marker on the Column ruler defines the left-hand column grid (border). The left edge of the LisaTerminal document is the first column grid; you need not put a column marker there. A column is what is between two adjacent column markers.

1 ▸ Open the LisaTerminal document you want to copy into the LisaCalc or LisaGraph document.

2 ▸ Open the **Ruler** menu and choose **Show Column Ruler**.

3 ▸ Set the column positions on the Column ruler to divide the LisaTerminal selection into columns.

4 ▸ Select the lines of text that you want to copy to a table.

5 ▸ Open the **Edit** menu and choose **Copy Columns**.

The lines with invisible tab characters at each column position will be copied.

▸▸▸

6► Open the LisaCalc or LisaGraph document into which you want to paste the LisaTerminal document, or create a new document.

7► Select a cell in the LisaCalc or LisaGraph document where you want to paste the upper left-hand corner of the LisaTerminal selection.

8► Open the **Edit** menu and choose **Paste**.

The information is pasted into the table. You may have to adjust the column widths to accommodate the widths of the LisaTerminal selection.

From LisaTerminal to LisaList

The rules for copying and pasting selections between LisaTerminal documents and LisaList documents are the same as those for LisaCalc and LisaGraph, with a few minor exceptions. You still must set the column positions on the Column ruler to divide the LisaTerminal selection into rows and columns before copying into LisaList.

When copying from LisaTerminal into LisaList, be sure the number of columns specifed by the Column ruler is less than or equal to the number of columns in the LisaList document. LisaList cannot create columns automatically to accommodate an arbitrary number of columns in a selection.

From LisaTerminal to LisaWrite

Since LisaTerminal does not allow printing, copy information you want printed into LisaWrite or one of the other Lisa tools if you want to print it.

LisaTerminal allows line and word wraparound, as does LisaWrite. However, lines that are wrapped in LisaTerminal have carriage returns inserted at the the end of each line on the screen, just as they would with ordinary terminals. In LisaWrite, carriage returns (inserted with the Return Key) signify the end of a paragraph. This means that each full line copied from a LisaTerminal document and pasted into LisaWrite appears in the LisaWrite document as a paragraph. The LisaWrite Margin/Tab ruler settings of such lines have no tab positions specified and have the right margin set at the maximum page width. If you use **Copy Columns** to make the copy, tab characters are included in the selection, but there will still not be any LisaWrite Margin/Tab ruler settings.

1 ▸ Open the LisaTerminal document you want to copy into the LisaWrite document.

2 ▸ Open the **Edit** menu and choose **Select All of Document**.

3 ▸ Open the **Edit** menu and choose **Copy Text**.

No tab information is copied. Instead, the text — with space characters as they appear on the screen — is copied onto the Clipboard.

4 ▸ Open the LisaWrite document into which you want to paste the LisaTerminal document, or create a new document.

5 ▸ Place the insertion point within the LisaWrite document where you want to paste the LisaTerminal document.

6 ▸ Open the **Edit** menu and choose **Paste**.

The information is pasted with a fixed-pitch type style. If you change to a proportionally spaced type style, the column alignments may change.

The contents of the LisaTerminal document are copied to the LisaWrite document. You can copy parts of LisaTerminal documents the same way. Instead of selecting the entire document, select the part of the document you wish to copy.

From Other Lisa Tools to LisaTerminal

From LisaCalc, LisaGraph, and LisaList to LisaTerminal

You can paste rows, columns, and groups of cells or fields from LisaCalc, LisaGraph, and LisaList documents into a LisaTerminal document. You cannot paste the graph portion of a LisaGraph document into LisaTerminal.

Before pasting a selection from a LisaGraph, LisaList, or LisaCalc table into a LisaTerminal document, set the tab positions on the Tab ruler in the LisaTerminal document to accommodate the width of the data in the LisaGraph, LisaList, or LisaCalc table. The first tab marker establishes the insertion point.

1 ▸ Open the LisaGraph, LisaList, or LisaCalc document containing the information you want.

▸▸▸

2 ▸ Select the entries to be copied from the document.

3 ▸ Open the **Edit** menu and choose **Copy**.

4 ▸ Open or activate the LisaTerminal document.

5 ▸ Open the **Ruler** menu and choose **Show Tab Ruler**.

6 ▸ Set the tab positions on the Tab ruler to match the column widths of the selection.

7 ▸ Open the **Edit** menu and choose **Paste**.

The table selection is pasted into LisaTerminal exactly as it appears on the screen in LisaCalc or LisaGraph, positioned into columns according to the tab marker settings on the Tab ruler. No information hidden by narrow column widths in LisaCalc or LisaGraph is pasted.

Cells made *invisible* by LisaCalc remain so when pasted into LisaTerminal.

When pasting from LisaList into LisaTerminal, all the information in the selected LisaList fields is pasted into LisaTerminal, including information hidden by narrow column widths.

For more complete information on copying procedures, refer to the *LisaGraph, LisaList,* or *LisaCalc* manual.

From LisaWrite to LisaTerminal

You can copy a whole document from LisaWrite into LisaTerminal. LisaTerminal then sends the document to the host computer just as if it had been typed directly into the LisaTerminal document.

Before pasting a selection from a LisaWrite document into a LisaTerminal document, set the tab positions on the Tab ruler in the LisaTerminal document to accommodate the positions of the tab characters in the LisaWrite selection. The first tab marker establishes the insertion point, so you probably will want to set this near the left margin. The first tab character in the LisaWrite selection will align with the second tab marker on the Tab ruler, the second tab with the third marker, and so on.

All tabs in LisaTerminal are normal tabs (that is, left flush), no matter what kind of tab is specified in the LisaWrite selection (right flush, centered, and so on). If you want to preserve the same appearance of the data in the LisaTerminal document, use only normal tabs in the LisaWrite selection.

1 ▸ Open the LisaWrite document containing the information you want.

2 ▸ Select the entry to be copied from the document.

3 ▸ Open the **Edit** menu and choose **Copy**.

4 ▸ Open or activate the LisaTerminal document into which you want to paste.

5 ▸ Open the **Ruler** menu and choose **Show Tab Ruler**.

6 ▸ Set the tab positions on the Tab ruler to match those of the LisaWrite selection.

7 ▸ Open the **Edit** menu and choose **Paste**.

For more information on copying from LisaWrite to LisaTerminal, refer to the *LisaWrite* manual.

Opening a Document

To Open an Existing LisaTerminal Document:

1 ▸ Open the hard disk, if the document is stored on your hard disk. If the document is on a micro diskette, insert the diskette and open it by clicking twice on the diskette icon.

2 ▸ Open the document by clicking twice on the document icon.

If you have everything set up for automatic dialing, the Lisa dials the remote computer when you open the document.

Setting Aside a Document

You can set aside a LisaTerminal document. When you do so, the document continues to receive information from the host, and no other document can use the serial connector. You must save and put away the document before the serial connector becomes available.

To Set Aside a Document:

1 ▸ Open the **File/Print** menu and choose **Set Aside**.

Putting Your Document Away

When you've finished with a LisaTerminal document, you can either save it or discard it.

Saving or filing LisaTerminal documents is just like filing any Lisa document. All the filing operations are on the **File/Print** menu. For a detailed discussion of Lisa filing, refer to Chapter 3, Lisa Essentials, in the *Lisa Office System* manual.

To Save a Document:

1 ▶ Open the **File/Print** menu and choose **Save & Put Away**.

The document window closes automatically, and its icon goes back to the position it occupied in the hard disk or micro diskette window before you opened the window.

You can discard LisaTerminal documents you no longer need.

To Discard a Document:

1 ▶ Move the pointer onto the icon of the unwanted LisaTerminal document.

2 ▶ Press and drag the document icon to the Wastebasket icon.

3 ▶ Release the mouse button.

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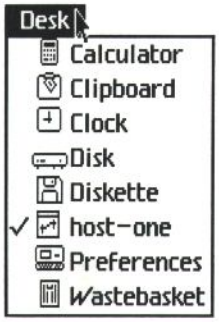
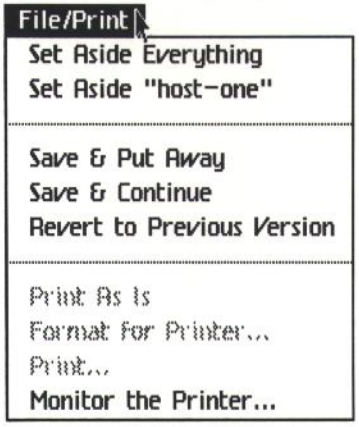
Appendix A LisaTerminal Menus

Appendix A summarizes the LisaTerminal menu items. Gray items are not available in LisaTerminal, except in the **Phone** menu.

Desk Menu



File/Print Menu



Set Aside Everything Returns all windows to their icons without saving the contents.

Set Aside "host-one" Returns the active document to its icon without saving the contents.

Save & Put Away Saves the contents of a document, closes the window, and returns the icon to its original location.

Save & Continue Saves the contents of a document and leaves the window open.

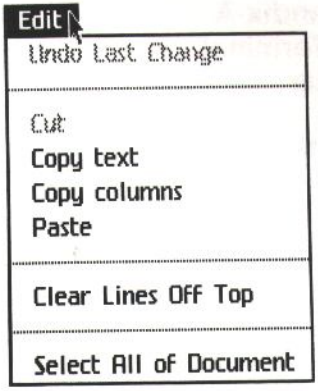
Revert to Previous Version Returns the document to the condition it was in the last time you saved it or put it away.

Print As Is Gray (unavailable).

Print Gray (unavailable).

Monitor the Printer Shows the status of the printer.

Edit Menu



Undo Last Change Gray (unavailable).

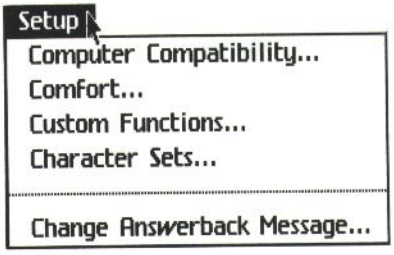
Cut Gray (unavailable).

Copy Text/Copy Columns/Paste Indicates basic editing functions.

Clear Lines Off Top Erases the lines that have scrolled off the top of the terminal screen area.

Select All of Document Selects the entire document.

Setup Menu



Computer Compatibility Brings up a dialog box to check the characteristics for compatible communication with the host computer.

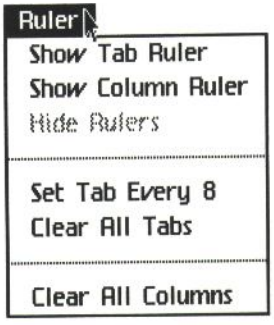
Comfort Brings up a dialog box to check comfort characteristics.

Custom Functions Brings up a dialog box to check custom functions required by the host computer.

Character Sets Brings up a dialog box to check character sets for communications compatibility.

Change Answerback Message Brings up a dialog box to enter the answerback message required by the host computer.

Ruler Menu



Show Tab Ruler Displays the tab ruler on the screen.

Show Column Ruler Displays the column ruler on the screen.

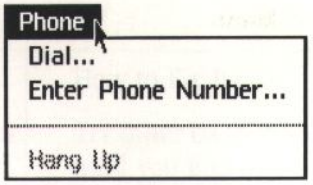
Hide Rulers Removes the tab and column rulers from the screen.

Set Tabs Every 8 Sets a tab stop every eight characters.

Clear All Tabs Removes all tab stops.

Clear All Columns Removes all column settings.

Phone Menu



Dial Dials the phone number or brings up a dialog box to enter the phone number you want the modem to dial.

Enter Phone Number Brings up a dialog box to enter or change the phone number.

Hang Up Disconnects LisaTerminal from the host computer.

Appendix B Error Messages

Appendix B explains some of the LisaTerminal error messages.

Error Message

Something went wrong trying to access Serial (A or B). LisaTerminal is changing the computer compatibility characteristic for " document name" to Off (Local).

Solution

This error message appears when LisaTerminal experiences difficulty trying to use Serial A or Serial B. The communication computer compatibility characteristic is changed by LisaTerminal to Off (Local). Make sure that the modem or tie line is correctly connected. Check Serial Cable for Serial A or Serial B in the Preferences window. Then change the communication characteristic back to On (On-Line), and try again. If the problem persists, use the other serial connector.

Error Message

LisaTerminal cannot communicate with the device configured to Serial (A or B). LisaTerminal is changing the communication characteristic for "document name" to Off (Local).

Solution

This error message appears when the Preferences window shows something other than Serial Cable for the serial port to which LisaTerminal thinks the modem or tie line is connected. Check the Preferences window and change the serial port selection to Serial Cable.

Error Message

The modem connected to "document name" cannot communicate at the specified baud rate. LisaTerminal is changing the communication characteristic for "document name" to Off (Local). Change the baud rate to an acceptable value.

Solution

This error message appears if you have an Apple Modem 300 and check a baud rate above 300, or if you have an Apple Modem 1200 and check a baud rate above 1200. Change the baud rate to 300 if you have an Apple Modem 300, or to 1200 if you have an Apple Modem 1200. Then change the communication characteristic back to On (On-Line) and try again. When an error occurs in an inactive LisaTerminal document, a tone sounds. Respond to the error message as prompted.

Appendix C Troubleshooting

Most problems you encounter while using LisaTerminal are caused by a setup characteristic that is chosen incorrectly for use with a particular host computer or communications network. Table 1 lists possible problems you may see during the data transfer, their probable causes, and what you should do to fix them.

Table 1. Troubleshooting

What You See	Possible Problem	How to Fix It
Nothing gets sent or received.	You connected to the wrong serial connector or you need a modem eliminator cable.	Try connecting to the other serial connector or get a modem eliminator cable.
	Parity error — the parity setting is incorrect.	Try setting the parity characteristic to None, Odd, or Even until the transmission is normal.
Data from host are missing random characters.	An overflow has occurred.	Check XOn/XOff for the handshake characteristic if the host supports it. If not, choose a slower baud rate.

Table 1. Troubleshooting, continued

What You See	Possible Problem	How to Fix It
Either data from host are garbled or you're not receiving data from the host.	Baud rate is incorrect.	Try other baud rates until you find one that works. Consult a manual or data processing specialist associated with the host or network to find out what baud rate is expected.
Double characters appear in the terminal screen area.	Host or communications network uses full duplex transmission.	Change the duplex characteristic to full duplex.
You don't see what you enter, but you get data from the host.	Host or communications network uses half duplex transmission.	Change the duplex characteristic to half duplex.
Lines of data from the host are double spaced.	Host and LisaTerminal are both performing Auto New-Line.	Change the Auto New-Line characteristic to Off.
Data are written over one line.	Host expects LisaTerminal to automatically begin a new line.	Change the Auto New-Line characteristic to On.
Characters disappear off the side of the Lisa screen.	Host expects LisaTerminal to perform line wraparound.	Change the line wraparound characteristic to On.

Appendix D Using LisaTerminal with Public Networks and Data Bases

LisaTerminal can connect to most public communications networks and data bases because it emulates three standard types of terminals (TTY, DEC VT52, and DEC VT100). This appendix discusses a small sample of the many public communications networks and data bases available using LisaTerminal.

Public communications networks are used to reach some particular service; the network is nothing but a way to get to the service. Data bases, on the other hand, actually provide services. A data base is simply a large collection of information, arranged so that it can be easily accessed.

This appendix discusses Telenet® and Tymnet®, two of the most popular public communications networks. This appendix also provides information about Dow Jones News/Retrieval Service®, THE SOURCE™, and CompuServe Information Service®, three of the largest data base services.

Connecting to the Services

Using LisaTerminal and the Apple modem, you can connect to any public data base in one of two ways:

- Call directly.
- Connect to a public communications network using that network to reach the desired data base.

Once you have successfully connected to the data base, you can access the available information by using menus, screen prompts, or some other guide for moving between the services offered by the data base. When you have finished, you may or may not have to tell the data base service to disconnect you. In any case, you should always tell LisaTerminal to terminate the communication by opening the **Phone** menu and choosing **Hang Up**.

Public Communications Networks

The two primary communications networks used to connect to various data bases are: Telenet, operated by General Telephone and Electronics, and Tymnet, operated by Tymshare Corporation. Both Telenet and Tymnet have local telephone numbers available for use throughout the country.

Connecting to Telenet

A huge number of data bases, other networks, and computer systems can be accessed through Telenet. Telenet does not charge you directly for services, and you do not need an account to access Telenet.

Figure 13 shows the Computer Compatibility dialog box with the characteristics set for Telenet requirements. The baud rate is 1200. If you have a 300-baud modem, then indicate 300 baud in your Computer Compatibility dialog box.

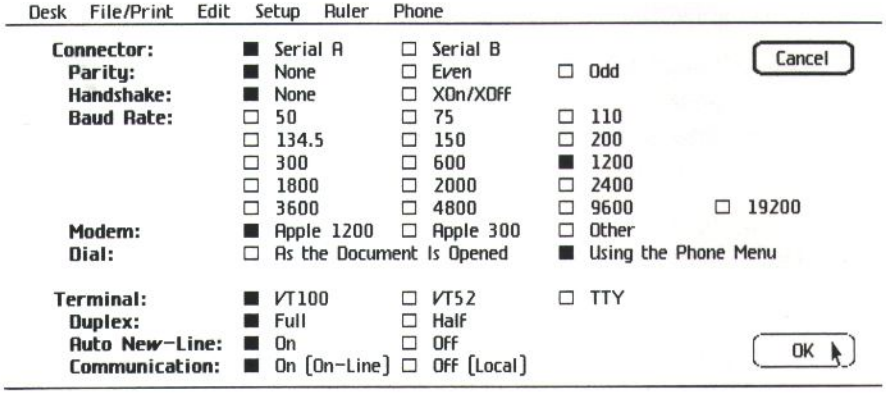

Desk File/Print Edit Setup Ruler Phone
Connector: ■ Serial A □ Serial B
Parity: ■ None □ Even □ Odd
Handshake: ■ None □ XOn/XOff
Baud Rate: □ 50 □ 75 □ 110
□ 134.5 □ 150 □ 200
□ 300 □ 600 ■ 1200
□ 1800 □ 2000 □ 2400
□ 3600 □ 4800 □ 9600 □ 19200
Modem: ■ Apple 1200 □ Apple 300 □ Other
Dial: □ As the Document Is Opened ■ Using the Phone Menu
Terminal: ■ VT100 □ VT52 □ TTY
Duplex: ■ Full □ Half
Auto New-Line: ■ On □ Off
Communication: ■ On [On-Line] □ Off [Local]
Cancel
OK

Figure 13. Telenet Computer Compatibility Settings

Once the Computer Compatibility dialog box is arranged correctly, move the pointer to OK and press the mouse button. The dialog box disappears. The LisaTerminal document now uses the characteristics you have set.

After you set the computer compatibility characteristics correctly, open the **Phone** menu and choose **Enter Phone Number**; then enter the local Telenet phone number in the dialog box. Open the **Phone** menu again and choose **Dial**. Your modem dials the number.

If you are using an Apple Modem 1200 or Apple Modem 300, you will hear the number being dialed, and then you will hear the Telenet phone ring. When the ringing stops, you should hear a high-pitched tone, and then the Apple modem's speaker is turned off. You are now communicating with the network.

Press the Return key twice. This synchronizes LisaTerminal with the network.

Telenet now needs information from you. It prints:

TERMINAL =

in the LisaTerminal document. Type:

D1

and press Return. *D1* identifies your Lisa as a DEC VT100 terminal.

You are now connected to Telenet. The @, or *at* sign, appears on the screen, indicating that Telenet requires you to identify the specific data base service you wish to access. This identifier is usually assigned to you by the data base service along with your account number.

Connecting to Tymnet

Set up your LisaTerminal document as you would for Telenet. Refer to Figure 13. The baud rate can be either 300 or 1200, depending on the modem you are using.

If you have an Apple Modem 1200 or Apple Modem 300, you can use the LisaTerminal **Phone** menu. After you set the computer compatibility options correctly, open the **Phone** menu and choose **Enter Phone Number**. The phone number you enter depends on the local number for Tymnet.

Open the **Phone** menu again and choose **Dial**. Your modem dials the number.

If you are using an Apple Modem 1200 or Apple Modem 300, you will hear the Tymnet phone ring. When the ringing stops, you should hear a high-pitched tone, and then the Apple modem's speaker is turned off. A string of characters appears:

PLEASE TYPE YOUR TERMINAL IDENTIFIER

Type:

a

Do not press Return. The *a* synchronizes LisaTerminal with the network and identifies your Lisa as a DEC VT100 terminal.

A second request for information appears on the screen:

PLEASE LOG IN:

This request requires that you identify the service you wish to access.

Dow Jones, THE SOURCE, and CompuServe

These three services are networks of public data bases. They have differences, but all three give you access to news, sports, entertainment features, business information, shopping information, and computing services.

The services available on these networks fall into the following categories:

Information This category is the largest. You can, for example, get news from newswires; use a number of investment services, including stock reporting services; see airlines schedules and weather reports; get general information about a variety of subjects; and get sports reports, information about jobs and education, and tax tips.

Communications This area revolves around electronic mail, which allows you to send messages to other users of the network. Other kinds of messages also can be sent. For example, on THE SOURCE, you can use a subscriber "bulletin board" to "post" classified advertisements for other network users to look at.

Shopping You can look at a variety of catalogs and classified advertisements and actually place orders.

Computing Services You can use computers provided by THE SOURCE and CompuServe to write programs, store information, or perform many of the same functions you do on a computer in your office.

The amount you are charged by the service depends on the length of time you are connected to the service. Some services are more expensive than others. In addition, if you use a data base service to store information, you may be charged a storage fee.

Logging onto Dow Jones

Note: Do not select XOn/XOff for the Handshake computer compatibility characteristic when using Dow Jones.

Whether you are using Telenet or Tymnet, the following message should appear:

WHAT SERVICE PLEASE????

Type:

DJNS

and press Return. Dow Jones will respond with the following request:

ENTER PASSWORD @@@@@@@@@@@

The @s are intended to hide your password from anyone looking at your display. Enter your password, and then press Return.

The following message will appear in the terminal screen area:

DOW JONES NEWS/RETRIEVAL COPYRIGHT 1982

DOW JONES & COMPANY, INC.

You will also be shown the first menu. A menu is a list of options similar to the menus used on the Lisa, but you indicate your choice of menu item by entering a number or a letter rather than by using the mouse. In general, the mouse is not used in communicating through LisaTerminal. Dow Jones is primarily a *menu-driven system;* that is, when you want to get to some particular piece of information, you choose menu items until you get to that information. You occasionally must, however, supply some more complex information, such as the code for a particular company. See Dow Jones documentation for more information.

Logging onto THE SOURCE

Whether you are using Telenet or Tymnet, or have called THE SOURCE directly, you should now see the following message:

WELCOME, YOU ARE CONNECTED TO SOURCE SYSTEM xx

PLEASE TYPE ID THEN YOUR NUMBER AND PASSWORD

>

The last character, the right-angle bracket (>) is the *prompt* character for THE SOURCE. The prompt character indicates that THE SOURCE is ready for a command. As requested, enter the characters *I* and *D,* followed by a space, give your account number followed by a space, and then give your password. For example, if your account number is TCA000 and your password is SAM, the line should look like this:

>ID TCA000 SAM

Press Return. THE SOURCE prints a message like this one:

THANK YOU, YOU ARE NOW SIGNED ON TO SYSTEM xx.

You will also be shown the first menu. A menu is a list of options similar to the menus used on the Lisa, but you indicate your menu choice by entering a number or a letter rather than by using the mouse. In general, the mouse is not used in communicating through LisaTerminal. THE SOURCE is a *menu-driven system;* that is, when you want to get to some particular piece of information, you choose menu items until you get to that information.

Connecting to CompuServe

Unlike THE SOURCE and Dow Jones, CompuServe provides its own communication network. You can connect through Telenet or Tymnet, but most users connect to CompuServe by calling one of the CompuServe network numbers.

Set up your LisaTerminal document as described under Setting Up for Telenet.

If you have an Apple Modem 1200 or Apple Modem 300, you can use the LisaTerminal Phone menu. After you have set the Computer Compatibility dialog box correctly, open the **Phone** menu and choose **Enter Phone Number**. The phone number you enter depends on the local number for CompuServe. You should get a number when you get your account.

Open the **Phone** menu again and choose Dial. Your modem dials the number.

If you are using an Apple Modem 1200 or Apple Modem 300, you will hear the number being dialed, and then you will hear the CompuServe phone ring. When the ringing stops, you should hear a high-pitched tone, and then the Apple modem's speaker is turned off. You are now communicating with the CompuServe network.

Hold the Apple key down and press the letter *c*. This is the Lisa equivalent for CTRL/C, sometimes written ^c. Entering this key combination synchronizes LisaTerminal with CompuServe.

The following request for information appears in your LisaTerminal document:

User ID:

Enter the sequence of numbers you were given by CompuServe, and press Return. The following request is now printed in your document:

Password:

Enter the password for your account. The characters do not appear when you enter them.

CompuServe now introduces itself and gives the time, day, and date. A menu or a question also appears. A menu is a list of options similar to the menus used on the Lisa, but you indicate your menu choice by giving a number or a letter rather than by using the mouse. In general, the mouse is not used in communicating through LisaTerminal. CompuServe is primarily a *menu-driven system;* that is, when you want to get to some particular piece of information, you choose menu items until you get to that information.

For Further Information

The following information on the communications networks and data base services covered in this appendix is provided for your convenience; note that addresses and phone numbers may have changed since this *LisaTerminal* manual went to press. Detailed information about services and procedures is available upon request.

Dow Jones News/Retrieval Service
Dow Jones & Company, Inc.
P.O. Box 300
Princeton, New Jersey 08540
(800) 257-5114

CompuServe Information Service
CompuServe, Inc.
5000 Arlington Centre Blvd.
Columbus, Ohio 43220
(800) 848-8990

GTE Telenet
8229 Boone Blvd.
Vienna, Virginia 22180
(703) 442-1000

THE SOURCE
Source Telecomputing Corp.
1616 Anderson Road
McLean, Virginia 22102
(800) 336-3366

Tymnet, Inc.
2710 Orchard Parkway
San Jose, California 95134
(408) 946-4900

Appendix E Programmer's Reference

Appendix E is a reference for experienced programmers.

LisaTerminal Keyboard Layout

Figures 14 and 15 show the LisaTerminal keyboard layout.

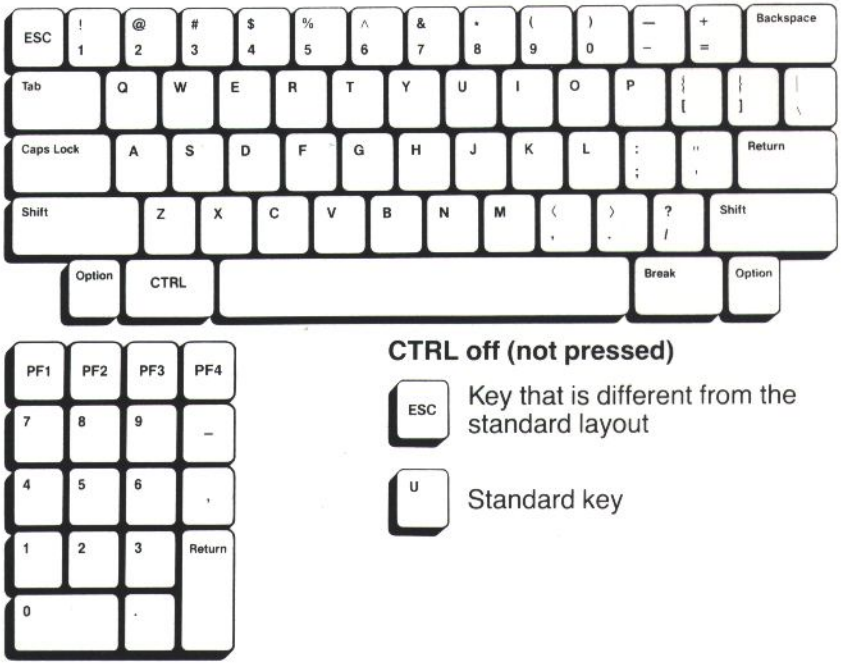


Figure 14. LisaTerminal Standard Keyboard Layout

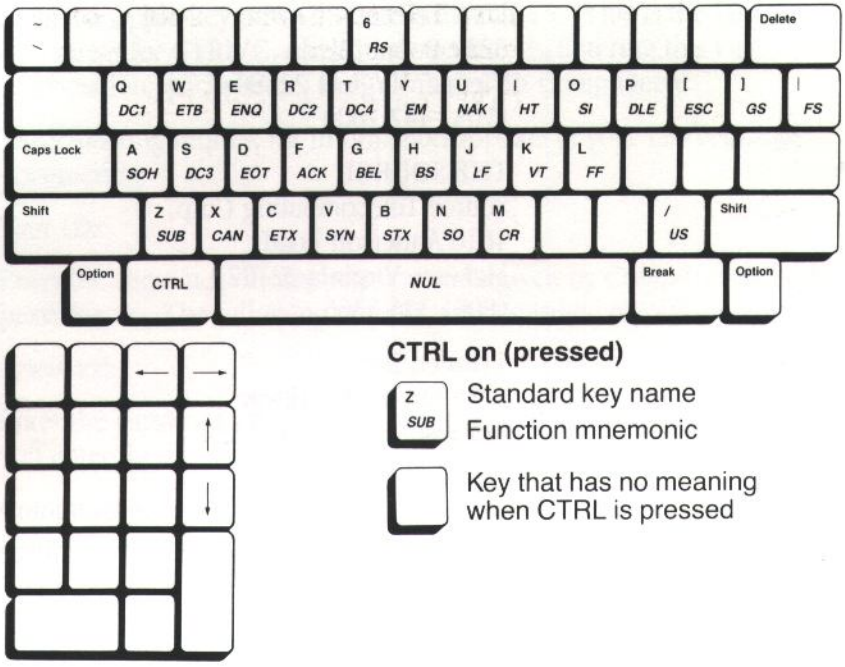


Figure 15. LisaTerminal Control (CTRL) Characters Keyboard Layout

Table 2 lists the control (CTRL) characters, the octal code transmitted, and the function mnemonic. On the Lisa, the Apple key serves as the control key. The key pressed in conjunction with the CTRL key may be shifted or unshifted.

Table 2. CTRL Characters, Octal Code, and the Function Mnemonic

CTRL Character	Octal Code	Function Mnemonic
Space Bar	000	NUL
A	001	SOH
B	002	STX
C	003	ETX
D	004	EOT
E	005	ENQ
F	006	ACK
G	007	BELL
H	010	BS
I	011	HT

Table 2. CTRL Characters, Octal Code, and the Function Mnemonic, continued

CTRL Character	Octal Code	Function Mnemonic
J	012	LF
K	013	VT
L	014	FF
M	015	CR
N	016	SO
O	017	SI
P	020	DLE
Q	021	DC1 or XOn
R	022	DC2
S	023	DC3 or XOff
T	024	DC4
U	025	NAK
V	026	SYN
W	027	ETB
X	030	CAN
Y	031	EM
Z	032	SUB
[	033	ESC
\	034	FS
]	035	GS
~	036	RS
?	037	US

Scroll/No Scroll

When you wish to temporarily stop receiving information from the host, enter CTRL S. When you want it to continue scrolling, enter CTRL Q. This works only if XOn/XOff is supported by the host computer.

Modes

Mode Name	To Set Mode	Sequence	To Reset Mode	Sequence
Line feed/new line	new line	ESC[20h	line feed	ESC[20l*
Cursor key mode	application	ESC[?1h	cursor	ESC[?1l*
ANSI/VT52 mode	ANSI	—	VT52	ESC[?2l*
Column mode	132 col	ESC[?3h	80 col	ESC[?3l*

Mode Name	To Set Mode	Sequence	To Reset Mode	Sequence
Screen mode	reverse	ESC[?5h	normal	ESC[?5l*
Origin mode	relative	ESC[?6h	absolute	ESC[?6l*
Wraparound	on	ESC[?7h	off	ESC[?7l*
Auto repeat	on	ESC[?8h	off	ESC[?8l*
Interlace	on	ESC[?9h	off	ESC[?9l*
Graphic process option	on	ESC1	off	ESC2
Keypad mode	application	ESC=	numeric	ESC>

*The last character of the sequence is a lowercase *L*.

ANSI Compatible Mode

Command	Sequence
Cursor up	ESC [Pn A
Cursor down	ESC [Pn B
Cursor right	ESC [Pn C
Cursor left	ESC [Pn D
Direct cursor addressing	ESC [Pl; Pc H
Direct cursor addressing	ESC [Pl; Pc f
Index	ESC D
Next line	ESC E
Reverse index	ESC M
Save cursor attributes	ESC 7
Restore cursor attributes	ESC B

VT52 Compatible Mode

Command	Sequence
Cursor up	ESC A
Cursor down	ESC B
Cursor right	ESC C
Cursor left	ESC D
Special graphics character set	ESC F
ASCII character set	ESC G
Cursor to home	ESC H
Reverse line feed	ESC I
Erase to end of screen	ESC J

Command	Sequence
Erase to end of line	ESC K
Direct cursor address	ESC Pl Pc*
Identify	ESC Z**
Enter alternate keypad mode	ESC =
Exit alternate keypad mode	ESC >
Enter ANSI mode	ESC <

*Line and column numbers for direct cursor address are single character codes whose values are the desired number plus 37 (base 8). Line and column numbers start at 1.

**Response to ESC Z is ESC/Z.

Auxiliary Keypad Codes

Key	VT52 Numeric Mode	VT52 Application Mode	ANSI Numeric Mode	ANSI Application Mode
0	0	ESC ? p	0	ESC O p
1	1	ESC ? q	1	ESC O q
2	2	ESC ? r	2	ESC O r
3	3	ESC ? t	4	ESC O t
4	4	ESC ? t	4	ESC O u
5	5	ESC ? u	5	ESC O v
6	6	ESC ? v	6	ESC O v
7	7	ESC ? w	7	ESC O w
8	8	ESC ? x	8	ESC O x
9	9	ESC ? y	9	ESC O y
−(minus)	−(minus)	ESC ? m	−(minus)	ESC O m
,(comma)	,(comma)	ESC ? /*	,(comma)	ESC O /*
.(period)	.(period)	ESC ? n	.(period)	ESC O n
ENTER	same as RETURN	ESC ? M	same as RETURN	ESC O M
PF1	ESC P	ESC P	ESC O P	ESC O P
PF2	ESC Q	ESC Q	ESC O Q	ESC O Q
PF3	ESC R	ESC R	ESC O R	ESC O R
PF4	ESC S	ESC S	ESC O S	ESC O S

Erasing

Command	Sequence
From cursor to end of line	ESC [K
From cursor to end of line	ESC [0 K
From beginning of line to cursor	ESC [1 K
Entire line containing cursor	ESC [2 K
From cursor to end of screen	ESC [J
From cursor to end of screen	ESC [0 J
From beginning of screen to cursor	ESC [1 J
Entire screen	ESC [2 J

Cursor Position Report

Command	Sequence
Invoked by	ESC [6 n
Response is	ESC [Pl; Pcr*

*Pl = Line cursor is currently on. Pl is a number between 1 and 24.
Pc = Column cursor is currently on. Pc is a number between 1 and 132.

Status Report/ Terminal Sequence

Command	Sequence
Invoked by	ESC [c*
Invoked by	ESC [0 c
Response is	ESC [?l; Ps c**

*Alternately invoked by ESC Z (not recommended). Response is the same.

**Other notes:

Ps = 0	baseVT100, no options
Ps = 1	processor option (STP)
Ps = 2	advanced video option (AVO)
Ps = 3	AVO and STP
Ps = 4	graphics processor option (GPO)
Ps = 5	GPO and STP
Ps = 6	GPO and AVO
Ps = 7	GPO, STP, and AVO

Confidence Tests

Command	Sequence
Fill screen with *E*s	ESC # 8
Invoke test(s)	ESC [2; Psy*
Reset	ESC c

*Notes:

Ps = 1	Power up self-test (ROM checksum, RAM, NVR, keyboard, and AVO if installed)
Ps = 2	(loop back connector required) data loop back
Ps = 4	(loop back connector required) EIA modem control test
Ps = 8	Repeat selected tests

Tab Stops

Command	Sequence
Set tab at current column	ESC H
Clear tab at current column	ESC [g
Clear tab at current column	ESC [O g
Clear all tabs	ESC [3 g
Scrolling region	ESC [Pt; Pb r*

*Pt = First line in scrolling region. Must be in range of 1 to 23.
Pb = Last line in scrolling region. Must be in range of 2 to 24.
Pb *must* be larger than Pt.

Status Lights

ESC [Ps; Ps; ... Ps q*

*Notes:

Ps = 0 or None	all LEDs off
Ps = 1	L1 on
Ps = 2	L2 on
Ps = 3	L3 on
Ps = 4	L4 on

Cursor Control Key Codes

Cursor Key (Arrow)	VT52 Mode	ANSI/Cursor Key Mode Reset	ANSI/Cursor Key Mode Set
Up	ESC A	ESC [A	ESC O A
Down	ESC B	ESC [B	ESC O B
Right	ESC C	ESC [C	ESC O C
Left	ESC D	ESC [D	ESC O D

7-Bit ASCII Code

Hex	Char	Hex	Char	Hex	Char
0	NUL	2B	+	56	V
1	SOH	2C	,(comma)	57	W
2	STX	2D	−(minus)	58	X
3	ETX	2E	.(period)	59	Y
4	EOT	2F	/	5A	Z
5	ENQ	30	0	5B	[
6	ACK	31	1	5C	--
7	BEL	32	2	5D	]
8	BS	33	3	5E	--
9	HT	34	4	5F	—
A	LF	35	5	60	--
B	VT	36	6	61	a
C	FF	37	7	62	b
D	CR	38	8	63	c
E	SO	39	9	64	d
F	SI	3A	:	65	e
10	DLE	3B	;	66	f
11	DC1	3C	<	67	g
12	DC2	3D	=	68	h
13	DC3	3E	>	69	i
14	DC4	3F	?	6A	j
15	NAK	4D	@	6B	k
16	SYN	41	A	6C	l
17	ETB	42	B	6D	m
18	CAN	43	C	6E	n
19	EM	44	D	6F	o
1A	SUB	45	E	70	p
1B	ESC	46	F	71	q
1C	FS	47	G	72	r
1D	GS	48	H	73	s
1E	RS	49	I	74	t
1F	US	4A	J	75	u

Hex	Char	Hex	Char	Hex	Char
20	SP	4B	K	76	v
21	!	4C	L	77	w
22	"	4D	M	78	x
23	#	4E	N	79	y
24	$	4F	O	7A	z
25	%	50	P	7B	{
26	&	51	Q	7C	==
27	'(apos.)	52	R	7D	}
28	(	53	S	7E	--
29	)	54	T	7F	DEL
2A	*	55	U	--	--

International ASCII Mapping

Language	ASCII Code											
Hex	23	26	40	5B	5C	5D	5E	60	7B	7C	7D	7E
USASCII	#	&	@	[	\	]	^	`	{	|	}	~
UK	£	&	@	[	\	]	^	`	{	|	}	~
Swedish/Finnish E47	#	&	É	Ä	Ö	Å	Ü	é	ä	o	å	ü
Swedish/Finnish D47	#	&	@	Ä	Ö	Å	^	`	ä	ö	å	~
Norwegian	#	&	@	Æ	Ø	Å	^	`	æ	ø	å	~
Danish	#	&	@	Æ	Ø	Å	^	`	æ	ø	å	~
German	#	&	§	Ä	Ö	Ü	^	`	ä	ö	ü	β
French	#	ë	à	â	ç	ê	î	ô	é	ù	è	û

Language	ASCII Code										
French-Canadian											
	#	&	á	â	ç	ê	î	ô	é	ù	è	û
Spanish											
	¿	|	á	[	Ñ	]	^	é	í	ñ	ó	ú
Italian											
	£	&	§	o	ç	é	^	ù	à	ò	è	ì

Appendix F LisaTerminal Serial Interface

LisaTerminal uses full-duplex, asynchronous communication lines. These lines are attached to Serial A or Serial B on the back of the Lisa. Serial A and Serial B are 25-pin connectors that meet the requirements of EIA specification RS-232-C. Table 3 summarizes the connector signals for Serial A and Serial B. Signal direction is given, where applicable, in relation to the Lisa. For example, the direction for transmitted data (Pin 2) is out. This means that the signal is sent out of the Lisa. When the direction of a signal is in, the signal is sent into the Lisa.

Serial A and B are wired differently. The Serial A connector is wired for full modem control signals. Serial B is wired with a special crystal oscillator that allows it to get all the common baud rates. Serial A uses the system clock and, as a result, cannot generate 3600 or 19200 baud.

Table 3. Serial A and Serial B Connector Signals for LisaTerminal

Pin No.	Direction	Serial A: Signal Name	Serial B: Signal Name
1	--	Protective Ground	Protective Ground
2	out	Transmitted data	Transmitted data
3	in	Received data	Received data
4	out	Request to send	Not connected
5	in	Clear to send	Not connected
6	in	Data set ready	Data set ready
7	--	Signal ground	Signal ground
8	in	Data carrier detect	Not connected
9	--	Not connected	Not connected
10	--	Not connected	Not connected
11	--	Not connected	Not connected
12	--	Not connected	Not connected
13	--	Not connected	Not connected
14	--	Not connected	Not connected
15	in	Transmit clock	Not connected

Table 3. Serial A and Serial B Connector Signals for LisaTerminal, continued

Pin No.	Direction	Serial A: Signal Name	Serial B: Signal Name
16	--	Not connected	Not connected
17	in	Receive clock	Not connected
18	--	Not connected	Not connected
19	in	Not conected	Receive data minus
20	out	Data terminal ready	Data terminal ready
21	--	Not connected	Not connected
22	--	Not connected	Not connected
23	--	Not connected	Not connected
24	out	Transmitter clock	Not connected
25	--	Not connected	Not connected

All the connected signals are explained in the list that follows. The explanations are for both Serial A and Serial B, except where noted.

Pin 1, Protective Ground This conductor is connected to the Lisa chassis. You may not use this conductor for reference-potential purposes.

Pin 2, Transmitted Data The Lisa transmits serially encoded characters and break signals on this circuit. The circuit is held in the mark state when nothing is being transmitted.

Pin 3, Received Data The Lisa receives serially encoded characters from the host on this circuit.

Pin 4, Request to Send For Serial A, the signal is always asserted when the Lisa Operating System is running. For Serial B, pin 4 is not connected.

Pin 5, Clear to Send For Serial A, this signal is ignored by LisaTerminal. For Serial B, pin 5 is not connected.

Pin 6, Data Set Ready This signal is ignored at all times.

Pin 7, Signal Ground This conductor is connected to the Lisa chassis. It is the common ground reference potential for all voltages on the LisaTerminal interface.

Pin 8, Data Carrier Detect For Serial A, this signal is ignored at all times by LisaTerminal. For Serial B, pin 8 is not connected.

Pin 15, Transmit Clock For Serial A, transmit clock is ignored at all times by LisaTerminal. For Serial B, pin 8 is not connected.

Pin 17, Receive Clock For Serial A, this signal is ignored at all times by LisaTerminal. For Serial B, pin 17 is not connected.

Pin 19, Receive Data Minus For Serial A, pin 19 is not connected. For Serial B, this pin should be grounded or left unconnected on the cable.

Pin 20, Data Terminal Ready Data Terminal Ready is asserted while the Lisa Operating System is running except for 3.5 seconds following SHIFT-BREAK.

Pin 24, Transmitter Clock For Serial A, this signal is for external clocking. It is driven by the input signal on Pin 15, Transmit Clock (if any). For Serial B, this pin is not connected.

Appendix G Differences between LisaTerminal and the DEC VT100

Appendix G lists the differences between LisaTerminal and the DEC VT100.

Bits per Character The number of bits per character is determined by the Parity setting in the Computer Compatibility dialog box. If Parity is Even or Odd, eight bits are transmitted for each character.

Interlace LisaTerminal has no interlace option.

Keyclick Tone LisaTerminal has no keyclick option.

Parity Parity errors are denoted in a LisaTerminal document as rectangular boxes.

Power LisaTerminal has no power option. The voltage is determined by the Lisa's power supply.

Transmit/Receive Speed LisaTerminal does not have different settings for transmit and receive speeds. The two options are merged into the baud rate characteristic in the Computer Compatibility dialog box.

Screen Brightness Screen contrast is controlled by Lisa Preferences.

Scrolling LisaTerminal has no scroll option, but is always set to jump scrolling. LisaTerminal does not have a smooth scrolling mode.

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Frequently Called Numbers

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Transmission Log

Network/ Data Base	Date	Time On	Time Off	Remarks

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Network/ Data Base	Date	Time On	Time Off	Remarks

Network/ Data Base	Date	Time On	Time Off	Remarks

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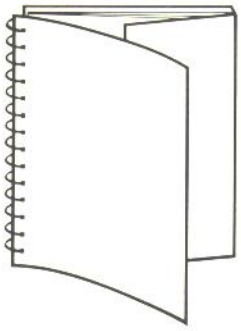
Network/ Data Base	Date	Time On	Time Off	Remarks

Notes



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Lisa Terminal

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